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THE CENTENARY OF SECTION E (GEOGRAPHY) IN THE BRITISH ASSOCIATION

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The significance of this year, 1951, is for us, not merely that it is the centenary of the Great Exhibition, but that it is the centenary of this, the Section of Geography in the British Association.* The Section was brought into existence, in circumstances we are presently to recall, at the Ipswich Meeting in 1851. It was the amiable practice of some of its earlier presidents to disclaim their own qualifications for their office. How appropriately I might do the same. But at least, at this centenary meeting, it may be thought suitable that the chair should be a museum piece. I am deeply grateful to be allowed to play that part. And on such an occasion we have a text ready to our hands. " Let us now praise famous men."

Of these, the first is Sir Roderick Impey Murchison. A native of Easter Ross in this country, born in 1792, he was educated for the army, and as a young man saw a little service abroad. He did not discover an interest in science until he was in his thirties, but when he did so he lost no time in achieving eminence : he was not out of that decade of his life when he became president of the Geological Society. With his brilliant and in some respects combative career in geology, which culminated in the directorship of the Geological Survey, we are not, however, here concerned.

In one of the immortal Irish stories of the Misses Somerville and Ross it is stated that " dotted at intervals throughout society are the people endowed with the faculty of ' getting up things.' They are dauntless people, filled with the power of driving reluctant spirits before them ; remorseless to the timid, carneying to the stubborn." Of such was Murchison. In 1830 he played a leading part in the foundation of the Royal Geographical Society ; in 1831, in that of the British Association. He was one of our General Secretaries from 1837 to 1845, and President of the Association in 1846. Nor did he cease, until his

death in 1871, to maintain his active interest in the Association generally, and in this Section particularly.

Geography appears in the Association before 1851 as an appendage of geology. As early as 1838 there were papers in Section C on expeditions up the Euphrates, and to Novaya Zemlya and Antarctic waters, and also on surveying. It must be supposed that the eminent geologists who comprised the majority of the sectional committee rebelled against this ; at any rate the name of this early Section thereafter became Geology and Physical Geography, and papers primarily descriptive of travel were for some years neglected. Murchison, possessing as he did some of the better qualifications of showmanship (a useful attribute in General Officers of the Association), found the solution in 1851, when at his instance the Section of Geography and Ethnography was established. (As a matter of history, our letter, E, does not imply seniority over Sections F and G, Economics and Engineering. It had been attached to a Section of Medical Science, afterwards called Physiology until 1847, when that subject merged for some years with Zoology and Botany under the letter D.)

If Mr E. C. Bentley had flourished a century ago, Section E might have tempted him to modify one of his famous quatrains, and to write that

> The art of Ethnography
> Is different from Geography.
> Geography is about maps,
> But Ethnography is about chaps.

Maps and chaps, however, got along well enough together until 1866, when ethnology, as it had come to be called, turned into anthropology, and harboured in the Section of Biology. We need not here pursue further the history of that Section.

The fact was that Section E at its initiation might without derogation have been called the Travel Section. Exploration was at that time the principal *métier* of British geography, and exploration was news. Therefore Murchison saw the opportunity of creating in the Association a Section which at once would present the knowledge of the earth's surface upon which so much of science depended, and would offer to lay members the interest of seeing and hearing the famous travellers who were busy in extending that knowledge. It is impossible to overrate the personal power of Murchison in the Section from 1851 to 1870. He brought into the chair eminent administrators or army or naval officers whose duties had taken them into distant lands, and if momentarily there was none such to be found, he took the chair himself: he did this no less than seven times in that period.

It was natural, and a well-judged move, that Murchison should bring into the secretariat of the Section a succession of officers of the Royal Geographical Society. The practice continued long after Murchison's time, in fact until 1913. The tenure of office by a recorder or a sectional secretary was formerly not limited, as normally it is now, to five years, and H. W. Bates, author of *The Naturalist on the Amazons*, held one or other of these offices almost without intermission from 1864 to 1881. It must have been much to the Section's loss that he never

occupied its chair, probably owing to his rather poor health. Most of the others became presidents of the Section in due course. A somewhat similar relationship with the Royal Scottish Geographical Society came into existence later, and so far as appears these connections in their day were productive of nothing but good.

In early days a sectional president's address was not one of the major items of the programme as it became later, and was not invariably published : it seems in our Section frequently to have taken the form of a few platitudes about the virtues of geography and of exploration, and an indication to the audience of what they were going to hear. In some measure this was regrettable, for the sonorous prose of the early and mid-Victorian period (which seems to have gone out of fashion rather abruptly in the 'seventies) is worth reading, perhaps in limited doses. Can we conceive of a president to-day charging his audience, as Murchison did in 1863, in these terms : " In conclusion, I have now only to exhort you to profit by this meeting not merely by listening attentively to the reading of the various memoirs to be brought before you, . . . but also by discussing all doubtful points in a fair spirit of enquiry." And I may be forgiven for rescuing from the report of 1851 the most exquisite euphemism I have ever encountered : " Less pains in dressing or clothing children cannot be taken than by the Hindoo : there is no artificial plan of modifying the form in any way."

It is obviously impossible to attempt any detailed analysis of a century's programmes within an hour. But by way of example, in that first meeting of the Section a hundred years ago the papers ranged widely. The Section was honoured by the presence of the Prince Consort, who communicated a letter written to him by Sir Robert Schomburgk on ethnological researches in Santo Domingo. There were papers on Mexico, on an earthquake in Chile, on Pacific and East Indian islands and in particular on Borneo, on New Zealand, the Himalaya, Asia Minor and Mount Ararat, on the Nile and on Abyssinia, on rapid intercourse between Europe and Asia, and on a canal across the isthmus of Darien. The two last illustrate a type of paper which very naturally was not uncommon in the earlier years of the Section—on potential lines of communication in various parts of the world. In 1852 there was a startling proposal for a waterway right across British North America, from the Atlantic to the Pacific. In 1888 Ferdinand de Lesseps, at the age of 83, presented a paper on the Panama Canal, the French scheme destined in that year to collapse in political strife.

A noble procession of explorers passed across the stage of the Section. David Livingstone was with us in 1857, and the Section was kept fully informed of his achievements at other times. Indeed Murchison, his close friend, may have exceeded the limit of proper showmanship when he read to the Section Livingstone's affecting letter to him on the death of Mrs Livingstone. And there was a curious incident in 1867, when Sir Samuel Baker, the discoverer of Albert Nyanza, set out to prove from the chair of the Section that Livingstone must be dead, and pronounced a kind of funeral oration on him ; and Murchison subsequently read a paper arguing that this most eminent

of African travellers was alive : Murchison was right, and Baker, despite his first-hand knowledge of Central African conditions, which Murchison did not possess, was wrong. The Section subsequently received H. M. Stanley after his expedition and meeting with Livingstone at Ujiji in 1871. The expedition sponsored by the Royal Geographical Society for the same purpose had failed, and the Society evaded the responsibility of according Stanley the prestige of a meeting in London. The Section stepped into the breach, not without some demur, perhaps understandable, on the part of Stanley.

Livingstone, Baker and Stanley had all been inspired by the journey made by Richard Francis Burton and John Hanning Speke when in 1858 they discovered Lake Tanganyika, and Speke, pushing forward when Burton was disabled, found Victoria Nyanza and believed it to be the source of the Nile. It will be remembered that Burton disputed this, that in the course of a later journey Speke and James Grant proved the point to demonstration only short of actually tracing the course of the river below the lake, but that Burton still disbelieved. Therefore in 1864 a debate between the two men was arranged in the Section, which might have achieved an equal heat with that between Hooker and Huxley and Wilberforce, Bishop of Chichester, on the Darwinian theory of evolution, in Section D in 1860. But Speke was killed in a shooting accident the day before the discussion was due, and Burton very properly substituted communications on his travels in West Africa. At a later date (1878) he addressed the Section on the land of Midian.

Alfred Russel Wallace was with us for the first time in 1863, and it is worth remark that he appeared in this Section as an ethnologist, lecturing on Malays and Papuans. His papers on the physical geography of the Malay Archipelago and on the geographical distribution of animal life in it were given in Section D, when he traced the Wallace Line beloved later of scholastic geographers. There was of course perfectly good reason for the second of these papers being presented to that Section ; but as for the other, it may be wondered whether he shared the suspicion of our own Section which undoubtedly was felt by some most eminent scientists at that time—the suspicion that geography, as Murchison conceived it, was not a truly scientific subject. For Murchison himself, as a geologist, was at issue with such masters as Lyell and Darwin : he was a catastrophist, and he did not accept the theory of evolution. Even Darwin, gentlest of men and of critics, wrote to Lyell after the publication of *The Origin of Species* : " I expected Murchison to be outrageous. How little he could ever have grappled with the subject of denudation ! How singular so great a geologist should have so unphilosophical a mind ! "

This, however, is to diverge from the topic of travel, to which, indeed, we must not devote much more time. There were many other travellers who appeared in their fame before the Section—Sturt, half blinded after his last expedition into central Australia ; the Schlagintweits from the Himalaya ; Fitzroy, the commander of Darwin's ship the *Beagle* ; Palgrave from Arabia, " the spirited and eloquent Palgrave," as Murchison described him, " the first intelligent person to traverse that country to the Persian Gulf "—Murchison had a striking

command of epithets ; Scoresby, disproving in 1853 the popular conception of an " open polar sea," on the ground that, with regard to the loose ice seen on the confines of the Arctic region, " the more probable inference is, that these ices are merely the excess of the winter production, by the severe frost of the north, carried off under the wise and gracious œconomy ordained by the Creator " ; Clements Markham, appearing on the platform of the Section for the first time in 1857 (in his 27th year) to discuss the search for Franklin's expedition; Edward Whymper, fresh, not from the Alps, but from Greenland ; Sir Erasmus Ommaney, who brought to the chair of the Section in 1877 a general account of Arctic travel—and a host besides which cannot be catalogued here. In later years our attitude towards explorers as such was modified : I recall, for instance, no special endeavour to secure the presence of Peary or Scott or Shackleton by way of signalising their personal achievements. Not that the Section ever failed to take note of exploration : as an illustration, those of us who were in Australia in 1914 do not forget the joint meeting of Sections C, D, E and K, with William Bateson, President of the Association, in the chair, when the subject was Past and Present Relations of Antarctica in their Biological, Geographical and Geological Aspects. Sir Douglas Mawson opened ; Griffith Taylor, Edgworth David, Albrecht Penck, Sir George Simpson and Sir Albert Seward were among those who took part. (Penck, by the way, was at that time an enemy subject : the first German war had broken out as we reached Australia, but the Australian authorities tolerantly allowed the distinguished German scientists who had come with us to participate in the meeting. The international bonds of science were not easily loosened in those days.)

Turning from travel to other departments of geography, we find that in the earlier years of the Section's life there may have been some justification for the mistrust, already mentioned, with which some scientists regarded the subject as a science. Thus in 1857 we received a peculiar paper which sought to prove that the Gulf Stream and the drift following it had nothing to do with the relatively warm winter climate of the British Isles, but that this was due to vapours. In 1858 another paper, on the configuration of the surface of the earth, indicated that " the currents of a primitive ocean, as determined by known physical laws and modified by the mountain systems already formed . . . necessarily . . . led to the formation of the great continents in their present position, and when taken in connection with the vertical forces operating from beneath, . . . account for all their geographical and geological features so far as they have hitherto been investigated." Perhaps you can work out the train of thought in that sentence : it is beyond me.

Teething troubles of that sort were soon over, but it was far otherwise with the notorious disputation on the question " what is geography ? " In the days when this was most rampant, I for one found no difficulty in losing patience with it, though in retrospect it is not without interest. There are many departments of science, outside the geographical field, between which there are certainly frontier regions, but as

certainly not rigid boundary lines. Of course this has been said before (there is nothing in this address which has not), notably by Leonard Darwin in his address in 1896, at the time when he was a secretary of the Royal Geographical Society. " My own humble advice to geographers," he said, " would be to spend less time in considering what geography is and what it is not ; to attack every useful and interesting problem that presents itself for solution ; to take every help we can get from every quarter in arriving at our conclusions ; and to let the name that our work goes by take care of itself." His advice was not immediately followed. The attempt to lay down boundary lines around geography was wasted effort ; but one saw why it happened—I can illustrate this from my own recollection by taking as an example one of our leaders, H. J. Mackinder. It was said of Mackinder by historians that he knew no history, by geologists that he knew no geology, by climatologists that he knew no climatology. That was untrue : he knew in those subjects those things which his geographical purpose required. However, the heart-searchings as to the scope of geography were born of that mistrust of the subject as a department of science to which reference has been made already. This mistrust was countered by exaggerated claims made by its protagonists, some of whom went near to asserting that geography was the foundation of all science. Sir Samuel Baker, for instance, told us in 1867 that geography was worthy of the " high position " of a Section in the Association, " as nearly every science is dependent on our knowledge of the earth " : he went on to associate the subject with theology and the Creation, and subsequently traced the influence of the geographical outlook in human affairs to the point when it became, as he said, " the base of diplomacy," and its study the necessary prelude to such objects as the provision of " a new and direct route to India," since " without yielding to exaggerated alarm, we must watch with intense attention the advances of Russia upon the Indian frontier."

The scope of geography was not, so far as appears, formally debated in the Section, but various presidents placed various versions before it, in manners not always acceptable to the stricter scientists in contiguous Sections, nor, indeed, equally to all geographers. Among the earlier addresses, that which revealed by far the clearest conception of the subject as it is now understood was given in 1875 by Lt.-Gen. Richard Strachey (afterwards Sir Richard Strachey), of the Royal Engineers, who was already a Fellow of the Royal Society, and was to become President of the Royal Geographical Society (1888-90). He was a man of immense erudition and wide interests : in the course of his public service, rendered mainly in India, he was concerned especially with irrigation, forestry and finance, and he added materially to knowledge of the geomorphology, geology and botany of the Himalaya. As he was not a professional geographer, there is some risk that he may be forgotten as a pioneer of this century's progress in geography, and that would be an injustice. In his address to us he acknowledged that his predecessors in the chair had " viewed geography in many various lights," but he himself claimed to follow " a somewhat different path from those who have gone before me in treating of geography,"

and he proposed " to speak of the physical causes which have impressed on our planet the present outlines and forms of its surface, have brought about its present conditions of climate, and have led to the development and distribution of the living beings found upon it." He drew a distinction between the popular conception of geography which stopped at observations and description, and what he called physical or scientific geography, which involved the classification and comparison of the facts so accumulated.

Strachey's work as a leader in geography was widely appreciated ; in our own Section by Sir Joseph Hooker, and in later years by J. S. Keltie. Hooker was President of Section E at the Jubilee Meeting of the Association, in 1881, when all the sectional chairs except one were filled by past Presidents of the Association. Of Strachey he said that a lecture given, not to us, but to the Royal Geographical Society in 1877, contained the ablest review of the subject known to him. " It might very well," said Hooker, " be entitled The Whole Duty of the Geographer. Every traveller's outfit should include a copy of it, and one should accompany every prize given by the Geographical Society to students for proficiency in geographical knowledge." Hooker came before the Section as a botanist interested in distributions : apart from a casual reference or two in earlier years, he actually introduced the work of Humboldt to the Section, and he presented Darwin, de Candolle and Alfred Russel Wallace in their rôles as geographers. This was an address of a rare type.

Clements Markham's address to the Section in 1879 traced the progress of geography from exploration through map-making to the study of land-forms and distributions, the air, and the sea, and to the effects of natural environment on man. Then—and this was the unusual feature of his address—he presented a geographical study of the Don valley, the meeting being in Sheffield. Being himself a visitor, he apologised to the local residents among his audience for introducing this subject to them, but it probably enlarged the outlook of most of them to hear him applying his own principles to the study of their home territory.

E. G. Ravenstein in 1891 thought the time had come again to survey the field of geography, and in doing so said nothing new, though he was explicit on the point that the geographer should know the foundations of his subject, and also should know—really know—one or more of the departments erected on that foundation. And that was wise advice, for this was precisely what other scientists in contact with geographers said that geographers did not do, and no doubt in those days there was some ground for the accusation. Ravenstein himself could not be so assailed, for no one could gainsay his profound knowledge of the history of cartography, the subject which occupied most of his address ; moreover, as he pointed out, whatever subjects might be argued about as within or without the scope of geography, cartography was not one of them.

Mackinder in 1895 and H. R. Mill in 1901, in presidential addresses to our Section, both adopted the historical approach to discussions of the scope of geography. Mackinder was speaking in the year in

which the International Geographical Congress had been held in Britain for the first time, and he took occasion to lay before the Section a conspectus of the work of Humboldt, Ritter, Petermann, Berghaus, Peschel, and others in Germany. If it occurred to any of his audience to do so, they might have wondered at the time-lag between the foundations of these Germans' work and their appreciation in this country. Yet we must not too loudly decry British geography of the nineteenth century. Mackinder put it characteristically and forcibly : " Speaking generally, and apart from exceptions, we have had in England good observers, poor cartographers, and teachers perhaps a shade worse than cartographers. As a result, no small part of the raw material of geography is English, while the expression and interpretation are German." In this stricture you notice that he said " England " and " English " : we may prefer to believe that he did not in these terms include " Scotland " and " Scottish."

Mill approached the subject rather as a research worker than as a teacher, and that is what might be expected from the differences of outlook between him and Mackinder. Mill, first, I believe, among those who had addressed the Section on the subject, set forth his own definition in an italicised sentence : " Geography is the science which deals with the forms of relief of the earth's crust, and with the influence which these forms exercise on the distribution of all other phenomena." There the italicised sentence ends, you may think too soon ; but the text continues : " This definition looks to the form and composition of the earth's crust itself, and to the successive coverings, partial and complete, in which the stony globe is wrapped. We sometimes hear of the New Geography, but I think it is more profitable to consider the present position of Geography as the outcome of the thought and labours of an unbroken chain of workers continuously modified by the growth of knowledge, yet old in aim, old even in the expression of many of the ideas that we are apt to consider the most modern." If we are tempted to wonder whether Mill's view of the scope of geography differed materially from that expressed by Strachey twenty-six years earlier, that need imply no criticism of Mill ; and Mill himself cast back to a predecessor nearly three centuries earlier than he. In the course of a review of what he termed " Some Historical Landmarks," ranging from Ptolemy to Kant, he introduced the name of Nathanael Carpenter, of Exeter College, Oxford, as the first English scientific geographer, contemporary of Varenius and Cluver. Carpenter published his *Geographie* in 1625, and in it he dealt with mathematical geography and cartography, continents and islands, mountains, valleys, forests, rivers and lakes and seas, climates, and the influences of geographical environment upon man. Modern geography, forsooth. No doubt with reason, Mill expressed the fear that most of his audience had never heard of Nathanael Carpenter.

Sir Thomas Holdich in 1902 viewed geography, as others have, as a foundation subject, saying that " a collector of facts like myself finds it convenient to accept, for the mere sake of simplicity, the science of geography as the best basis for divergent inquiries into many other scientific fields, which can be differentiated at leisure by the natural

philosopher." And indeed there have been distinguished geographers who have done just that : the cousins Leonard Darwin and Sir Francis Galton are outstanding examples, whose names remain no longer in general estimation as geographers, but as anthropologists in a special field. And Mackinder passed on from geography to statecraft, though never neglectful of his primary interest.

We need not further pursue the subject of the scope of geography through addresses by subsequent presidents. Some of them referred to the question incidentally ; but the earlier disputes were dying down. In the eleventh edition of the *Encyclopaedia Britannica*, which appeared in 1910, Mill modified his definition of geography in these terms : " the exact and organised knowledge of the distribution of phenomena on the surface of the earth," which improves upon his wording of ten years earlier. If anyone had presented Mill's definition of geography sixty years before, we should have heard of people countering it with some such variation as the inexact and disorganised knowledge of the distribution of some of the phenomena on bits of the surface of the earth, or words to that effect. Geography may well be a primeval science ; Adam and Eve may well have been the first geographers as well as the first pomologists and herpetologists. What geography has achieved in the century we are reviewing, and what Section E has very effectively aided in achieving, is to demonstrate an outlook wider in horizon than those of the other departments of science with which it is associated, and to help to bring them into a harmonious focus. It has been asserted that geography is no more than a point of view. So, if you come to that, is all science a point of view, and one of the most exalted to which man has attained.

Sir Charles Arden-Close, addressing us in 1911, showed that out of original contributions to the proceedings of the Royal Geographical Society during the five years 1906 to 1910, explorations still accounted for 57 per cent., physical geography in all departments (including land forms, seismology, vulcanology, glaciology, hydrography, oceanography, meteorology and terrestrial magnetism) for 29 per cent., economic and social geography for 7 per cent., mathematical and cartographical geography for 3 per cent., the few remaining communications being anthropological and biological. Our own distribution of papers in those same years was different. Our papers on exploration were only 22 per cent. of the whole, on aspects of physical geography 43 per cent., on economic and social geography (taking that division to include geography in education) 23 per cent., and mathematical and cartographical geography 12 per cent. Anthropological and biological subjects are of course covered in other Sections of the Association. These figures suggest a cleavage between the policies of the Society and the Section ; indeed, there was about that time such a cleavage, though it merely eased, not forcibly disrupted, the close relationship between the two organisations which has been mentioned already. We should glance at some of the main trends among the subjects referred to.

The Section was informed from time to time as to the progress of survey methods, but on the lack of progress in surveying it was from time to time critical. Such lack was not the fault of geographers but of

administrators. So we find Murchison in 1863 complaining of the incompleteness of the Ordnance Survey, a defect in due course remedied. In 1872 Galton devoted most of a brief address to means for making Ordnance Survey maps more easily accessible to the public, and his proposals bore fruit. At intervals through the century there are reflections on the need for surveys in overseas territories of the Empire. Mill commented on this in 1901 ; Reeves in his address in 1916 on the mapping of the world indicated the position clearly, and it is one upon which the Section did, and does, well to keep watch, for it is always possible, if the Council sees fit, to put the weight of the British Association behind a recommendation.

As an incident in our Section's history, the Palestine Exploration Fund was a cause to which the Section gave a good deal of attention in 1866-75, maintaining a collaborating committee, through which contributions to the fund were made by the Association. And we may remind ourselves of papers in 1877 and 1878, on levels from the Mediterranean Sea to the Sea of Galilee, and on a survey of Galilee respectively, by Lieut. H. H. Kitchener, R.E., a young man destined for the highest rank in his profession. We should recall also, with gratitude, Mill's conception, brought before us in 1896, of a geographical description of the British Isles based upon sheets of the Ordnance Survey, of which he himself provided an example, now in the fullness of time to be followed on a comprehensive scale. Nor, I hope, was the Section unhelpful toward that outstanding geographical undertaking, the Land Utilisation Survey.

In 1857 William Hughes, a man whose pioneer activities in geographical education may be in some danger of oblivion, entered a plea for decimal scales in all maps, and particularly in atlas maps, the scales of which, he said, though uniformity is unattainable, should always bear a decimal ratio one to another. He must have been something of a pioneer in pointing out that, for educational uses especially, " proportionate distances and magnitudes, referred to an easily comprehended standard, are the basis of all sound geographical knowledge." One might have supposed that Hughes' lesson would have come home to cartographers by now, but this is not always the case. Only last year the lament of an eminent geographer was heard in a published letter concerning a flight to Montreal, in which these words occur : " I did not think it could be so far along the river to Montreal," and later, " No school atlas ever gave a child any idea of the size even of Montreal Island. Damn atlases." There is much to be said for this view. Yet in Edinburgh such a charge, or any charge against British cartography, will be received with equanimity, for here has been achieved a standard of scientific cartography unsurpassed elsewhere in the world.

Ravenstein's address on the history of maps we have noticed already. In 1892 he brought before the Section Penck's conception of a world map on the 1/M scale. Herbertson in 1896 spoke to the Section on the meteorological atlas. Among later communications, we must not fail to take note of the address in 1925 by A. R. Hinks, who brought to bear on cartography not only a profound knowledge of the mathe-

matics of the subject, but also a distinguished sense of the artistic merit in maps which a few cartographers do, and all should, strive to achieve. A sectional committee in 1912-13 studied the subject of atlases and maps for school and university use, not, I believe, without effect.

Geography, as Mill and others have said, is a tree of age and long growth, but looking back over our century we certainly find a new strength, a richer foliage, beginning to appear in the late 'seventies and the last two decades of the nineteenth century. In our own Section, one gets the sense that Strachey in 1875 and Markham in 1879, in colloquial phrase, started something. In physical geography the treatment of subjects began to take on a new precision. Godwin-Austen gave us an address on the Himalaya in 1883 which marks a forward step in the geographer's view of a mountain-system ; and James Geikie's address in 1892 on coastlines was unlike any before it in bringing a definite code of study to bear on a particular class of physical features. In 1893 a full-dress debate was staged between geographers and geologists on the limits between physical geography and geology, Clements Markham leading. A more indeterminate discussion could scarcely be conceived, and Sir Archibald Geikie, from the chair, summed up to the effect that a hard and fast boundary line between the two subjects was neither necessary nor desirable.

In 1894 Penck published his *Morphologie der Erdoberfläche*, and in 1897 one suspects that the Section missed an opportunity when Penck, W. M. Davis, and Kropotkin were present: one can so well conceive these three meeting in some broad morphological discussion ; but their communications lay apart. Kropotkin spoke of the direction of lines of structure in Eurasia, Penck of the need for the study of rivers, Davis merely of geography in universities. The subject of geomorphology now claimed increasingly wide attention : I remember Herbertson speaking to me "of this whole great new science," a phrase which has remained in memory probably because at the time (it must have been in 1901) I did not know what geomorphology meant. It is well known that Herbertson's conception of natural regions, through which he became and will remain one of the outstanding figures in the history of British geography, was rather coolly received when he first introduced it to the Royal Geographical Society in 1904, and the regions did not appear in our Section until 1913, when he opened a discussion on them. Meanwhile, he had been our president, in 1910, and it is perhaps significant that he then referred only incidentally to natural units, not regions. But his fine conception was to prevail.

In 1915 Sir Henry Lyons was calling the Section to more and more research in the science of geography—he stressed the science—in all departments, but especially the physical. Mackinder in 1931 wished to regard the hydrosphere, not the lithosphere, as the foundation for geographical research, and he relegated geomorphology to the position of a marginal subject, an interesting argument which I confess that I was then, and still am, unable wholly to follow. However, inasmuch as in later life Mackinder was taking that view, it is of some interest to recall that Sir John Murray in 1899 opened his presidential address by

soundly rating the occupant of the chair in 1895, who was Mackinder though Murray did not name him, for making no mention of oceanography in the " very able and detailed review " of the progress of geography down to that year and since the foundation of the Association. Murray, as a participant in the voyage of the *Challenger* from 1872, and editor of the scientific reports of that voyage which were completed in 1896, naturally devoted his address to oceanography : he dated from this voyage the recognition of the subject as a distinct branch of science, and properly so, though the Section had not failed in earlier years to take note of the study of the sea, and has continued to give place to it in its programmes, including that of the present year.

At quite an early stage the Section was introduced to that unblessed word anthropogeography, and a general conception of the influences of environment on man was indicated by various speakers to the Section almost from its beginning. In view of our co-operation with ethnology this was natural, and there is a strong suggestion that that co-operation helped to foster the progress of what came to be known as human geography.

Herbertson planned a work on human geography ; indeed, I saw fragmentary proofs of the beginning of it, heavily corrected, as death compelled him to leave it. Dr Marion Newbigin in 1922, and one of Herbertson's most distinguished pupils, P. M. Roxby, in 1930, gave addresses on human geography to this Section, which, taken together, provide directives of thought in this subject which, I feel sure, are less accessible than they should be, in having suffered interment in the annual volumes which the Association used then to publish. I think Roxby was the first to present to the Section, at least with any measure of analytical judgment, a view of the work of the French geographers. A part, however, rather than the whole of this department came first under particular notice during the fruitful period at the end of the nineteenth century. This was what was known at that time as commercial geography, which first appeared in our programme in 1884 in a paper " On the British Commercial Geographical Society, about to be founded." The subsequent history of this proposal is unknown to me. In 1889 and 1890 the subject was taking good hold. Sir Francis de Winton in the former year set out its elements in his address, as if it were something new ; Mill spoke on the physical basis of commercial geography ; in the following year Keltie took up the commercial geography of Africa, and there were other papers on the subject. By 1907 George Chisholm had long been recognised as a leading authority on commercial geography : his address to us in that year took the form of a history of certain trade routes. Dickson's in 1913 reviewed existing routes on the broadest basis, and he concluded with a plea for a stock-taking of natural products, which, he said, while drawing upon the knowledge amassed by science in other departments should be the task of no one or group of these, but of geography. Dickson, late in his life, became an encyclopaedist : how ably, had the opportunity come to him, would he have conducted such an inquiry as he had in mind.

A first contact with the possibility of geography as an educational

subject remains in mind because it coincided with my first acquaintance with Sir Clements Markham. The year was 1896, my last at Westminster School, of which Markham was a devoted *alumnus*. It was a hallowed practice among Old Westminsters, on attaining high honours, to appear at the School and invite the headmaster to grant a " late play," which being translated signifies an additional half-holiday. Markham did this, and spoke to the School about geography, and then he advised us all to specialise in something. " Look at me," he said, " I have specialised in geography, and here I am a K.C.B." I believe we thought him a rather conceited old man (which he was not), and we communed among ourselves how anyone could conceivably specialise in geography, since for us it had stopped short at the questions and answers in the primers of extreme childhood. The movement toward improved geographical teaching in schools had not then reached Westminster. This had been initiated in 1869 by the Royal Geographical Society under the inspiration of Francis Galton, who did not refer to this matter in his address to the Section in 1872, though the Section received in the same year an account of geography teaching at Eton, where it seemed to be carried on with good judgment. Otherwise the Section was not used as a sounding-board for the scheme, which was abandoned in 1884 since only very few schools remained in support of it.

It is well known that the Society was not thereupon discouraged, but in the same year appointed J. S. Keltie as its inspector of geographical education, and charged him with the investigation of the subject in other countries. He produced a report, and an exhibit of foreign text-books and appliances, to which the cliché may truly be applied that in Britain they marked the beginning of a new epoch. The Society thenceforward concerned itself less with school-teaching and more with the status of geography in universities ; first in Oxford and Cambridge, then elsewhere, until in 1930 Mill was able to write that " there is now a geographical department in every British University where forty years ago there was none."

That, then, is one of the major achievements in geography within our century—its establishment as a subject of instruction in schools and universities. Looking back, one sees this as the result of a magnificent piece of team work. It seems now a remarkable feature that those who sponsored the movement should have convinced the educational institutions that they were right, while they themselves, or some of them, were still having to argue about the definition and scope of their subject. Whatever obstacles may have been encountered at the time, the movement, viewed historically, grew like a snowball. Besides the Royal Geographical Society, the Royal Scottish Geographical Society and many other societies fostered it. Its effect on the programmes of our Section was strongly marked. While the Section had touched little upon education down to 1885, in that and subsequent years there was a whole spate of addresses and papers on the subject. Keltie began it ; Goldsmid, Freshfield and Mill followed in 1886 ; Sir Charles Warren devoted his address to it in 1887. Among many wise observations he reminded the Section of the value of geo-

graphical knowledge " more particularly " of " our own Empire "—an aspect of the matter which some teachers, at any rate, preferred to ignore. To persons ultra-nationally minded the word " empire " may indeed have been anathema and the conception of a commonwealth repulsive ; but in later years that trend of thought has without doubt diminished. Warren's conception of geographical rhymes for young children, set to music and sung, indicates at once the breadth and the youthfulness of his mind : it conjures up (though he did not say so) the delicious imaginary picture of a committee of the Section charged with composing such aids to memory authoritatively, and by way of report, performing them in concert in the Section-room.

In the same year (1887) Mackinder promulgated a scheme for geography at the universities ; Keltie reviewed the situation again in 1891 ; H. N. Dickson in 1892 stressed the need for the teaching of meteorology at a time when, he said, there was no such teaching anywhere in the country (he and others were to remedy that not many years later) ; in 1893 B. B. Dickinson outlined the scheme of an association for the promotion of geographical teaching which had been put forward at Oxford earlier in the year, with what fertile results, under its honoured name of the Geographical Association, we all know. In later years Mill, Douglas Freshfield, Herbertson, David Hogarth and Sir John Myres were among those who made the most important communications the Section has received on geography in education. In 1903, and again in 1929, we discussed the matter jointly with the Educational Science Section (L), Mackinder leading on the first, Myres on the second occasion. One of the Section's research committees in 1923 and subsequent years made a survey of geographical teaching which should by no means be overlooked to-day. A practical demonstration we must not neglect here in Edinburgh is Professor Patrick Geddes' Outlook Tower, which he described to us at the meeting in 1895.

Nor must I neglect a dutiful tribute to those who taught me the most of what geography I knew. The Oxford trio of Mackinder, Herbertson and Dickson was an exceedingly powerful combination. Mackinder by his oratorical gifts alone would have focussed attention upon any school or cause. Of geography, as presented by Mackinder, it might be said as Wordsworth wrote of Milton :

> The Thing became a trumpet ; whence he blew
> Soul-animating strains,

and I recall him as more effective in the lecture-room than in the laboratory. The reverse was true (to me at any rate) of Herbertson. On the platform his enthusiasm was in a measure concealed by a rather flat delivery ; as a tutor, he was infinitely patient and admirably lucid. As for Henry Newton Dickson, if I am biassed by the memory of a close friendship, I make no apology. He left not much in writing, but I believe his mind to have been more scholarly than Mackinder's, more agile than Herbertson's. He made original contributions to the study both of the weather and of the sea ; he was a good mathematician and a trained surveyor. Later, when he left Oxford for Reading, the scope

of the chair he occupied there directed his attention to economic geography : this, as we have seen, was the subject of his address to Section E as president in 1913. As a chief Dickson was wholly admirable, as none knows better than I who served under him in the Geographical Department, Naval Intelligence, from 1915 to 1919.

Time presses, and I have omitted so much. I have said almost nothing of the research committees from time to time appointed on the recommendation of the Section, whose merits deserve a review to themselves. I have indicated little of the real range of the geographical outlook. I have refrained from trespassing on the land of the living : that I should comment upon the work of our present geographers would have been merely impertinent. What I have tried to show by illustrations from the work of this Section, is that, in the century which is past, British geographers have enunciated their principles and begun to apply them ; have indeed applied them so far that the time is ripe, I believe, to express them, not only in terms of individual researches (as is done) but in terms of a new geographical encyclopaedia. That is easily said, less easily done against the barrier of present-day costs. Yet some of us, I trust, may see it done. Meanwhile may I touch in a few words on one more of the many facets of geography.

I made, a while ago, a flippant reference to Adam and Eve. I apologise to their shades, for they must have loved their Garden of Eden. Such earth-love must always have been a primitive, deep-seated instinct of man. We are, if you care to coin a word, geophilists. Of this love are born farmers and travellers and geographers, including such enthusiasts as the advertiser in *The Times* not long ago, the " six-foot geographer (female)," who asked for an " adventurous post." But in some this love of the land is absent or latent because of the setting of their lives in places where the beauties of the land are not seen. A speaker to the Association for the Preservation of Rural Scotland was quoted recently as saying that not enough emphasis was placed in the schools on where men came from—the soil. Somehow, he said, they wanted to get at the children at school so that it would be a joy for them to go into the country and see beautiful things. That is obviously a call to geography : it is a corollary to T. H. Huxley's charge to " seek the meaning of the phenomena offered by the brook which runs through our village, or by the gravel pit whence our roads are mended." To teach the beauties of the land for the sake of their preservation must surely be a high function of geography. It may be conceded that a greater proportion of us is sensitive to those beauties than was the case a century ago, and alongside the organisations and individual activities which work for their preservation I like to believe that the teaching of geography has had material effect.

In this connection we owe constant attention to the literary side of our subject, for much can be achieved by well chosen words, whether with or without opportunity for visual guidance. Douglas Freshfield saw that, in his address to us in 1904 on the mountain scenery which he loved. Vaughan Cornish saw it and expressed it in his own earnest if rather angular style. Mackinder saw it in his first address when he spoke of geomorphology as the half-artistic, half-genetic consideration

of the form of the lithosphere; and again, in his second address, when he said that he " would have the young geographer practised in the use of an almost Ruskinian, purely descriptive language."

We should avoid by all means the too facile use of common epithets, such as occurred in a text-book I had to read years ago, in which that grievously overworked adjective " great " occurred nine times on one page (and I dare say nine hundred times in the whole book), applied impartially to the works of man and the wonders of nature. We have guidance ready to hand in the works of some of the more eminent travellers, and also in those of certain writers of fiction. I have no pretension to be thought well read, but among the second of these classes my best beloved writers are two, fitly to be named here in Scotland—Robert Louis Stevenson and John Buchan. Each of these had an outstanding gift of presenting incidents in exquisite settings of scenery and even of atmospheric conditions. May I give one example —Stevenson's description of an atoll in the Pacific Ocean from his novel *The Ebb Tide* : " The isle—the undiscovered, the scarce believed in—now lay before them and close aboard: and Herrick thought that never in his dreams had he beheld anything more strange and delicate. The beach was excellently white, the continuous barrier of trees inimitably green; the land perhaps ten feet high, the trees thirty more. Every here and there, as the schooner coasted northward, the wood was intermitted; and he could see clear over the inconsiderable strip of land (as a man looks over a wall) to the lagoon within—and clear over that again to where the far side of the atoll prolonged its pencilling of trees against the morning sky. He tortured himself to find analogies. The isle was like the rim of a great vessel sunken in the waters ; it was like the embankment of an annular railway grown upon with wood : so slender it seemed amidst the outrageous breakers, so frail and pretty, he would scarce have wondered to see it sink and disappear without a sound, and the waves close smoothly over its descent." If ever we torture ourselves to find analogies, or aspire to frame descriptions in such transcendent terms, at least we shall be making a worthy endeavour.

Have you noticed the high proportion of Scotsmen who have set their names upon the roll of progress in this past century of geography —Murchison, Livingstone, the Geikies, Keltie, Mill, Chisholm, Herbertson, Dickson, Geddes, and many more than these ? I am not trying to produce a calculated effect for the occasion of a meeting in Scotland. Whence, then, came their inspiration ? If I have guessed rightly, it must have been a gift of grace from their own most lovely land.

* Address to Section E (Geography) of the British Association for the Advancement of Science, delivered by Dr O. J. R. Howarth, O.B.E., President of the Section, at the meeting in Edinburgh on 9th August 1951.

TABLE BAY HARBOUR

General view facing south. Victoria Basin (67 acres), Duncan Dock (290 acres), Sturrock Graving Dock and Small Craft Basin. Reclaimed foreshore (centre). Devil's Peak and Table Mountain (background).

DAR ES SALAAM

Non-Native Zone, with Lutheran Church, Roman Catholic Cathedral, and Terminus of the Central Railway (right). Land-locked harbour.

MOMBASA

Mombasa Town and Island. Kilindini Harbour in background.

KARACHI HARBOUR

Sheds of the Import Yard, and Junar Bandar (foreground). Causeway from mainland to Keamari Island enlarged by reclamation based on Napier Mole. Reclamation has added to the West Wharf (right). Background: Sand-spit leading to Manora Point, natural breakwater to the harbour.

INDIAN OCEAN COMMUNITY

By William Kirk

Whosoever commands the sea commands the trade ; whosoever commands the trade of the world commands the riches of the world and consequently the world itself.
Sir Walter Raleigh.

When, early in 1942, the Japanese captured Singapore and overran SE Asia, Britain lost control of the Indian Ocean for the first time in over a century, and European hegemony in eastern waters, undisputed since the Battle of Diu in 1508, was challenged by an Asiatic power. From sea bases controlling the Malaysian Divide and screened by forward air bases in the Andaman and Nicobar Islands, Japanese sea-power constituted a threat to the entire shore-lands of the Ocean. Darwin in N Australia was almost totally destroyed, and the long projected but never completed transcontinental railroad suddenly acquired new significance. The danger that Madagascar might fall and expose the vital seaways from the Cape to Southern Asia necessitated the seizure of the Vichy-French naval base of Diego Suarez. Attacks were made on Trincomalee and Colombo, and the British fleet was obliged to move base to Kilindini on the African coast where port facilities were hurriedly improved. The expected invasion of S India, however, never matured, and the fleet itself survived, so that when events in the Atlantic and Pacific allowed its reinforcement, the battle was carried eastward once more against the Japanese bases at Sabang and Sourabaya and the coastal shipping supplying the Nippon armies in Burma. The rapid degeneration of this shipping to ' motley Armadas of junks and sampans,' the importance attached to the construction of the Bangkok-Moulmein railway, and the ease with which British amphibious operations were carried out in the closing stages of the war, all demonstrate that the initiative of sea mobility had been lost by the Japanese. The Indian Ocean was once again the British Lake. But the Japanese interlude was a powerful reminder of the world-wide nature of sea-power, the rôle of the sea in relation to the security of its borderlands, the need for land protection of sea bases, and above all, of the strategic unity of the Indian Ocean Community.

Sea-Power and Community

During the period of European conflict in the Indian Ocean it was proved on many occasions that in establishing sea-power the world sea is indivisible, that changes in the balance of power at any one point reverberate throughout the whole surface. The collapse of the sixteenth century sea empire of Portugal, for example, may be attributed to many factors, including the cultural inability of Portuguese society to emulate the single-minded commercialism of NW European societies where the Reformation had expressed a revolution in economic ideals, the economic handicaps of state trading in opposition to the vigorous Dutch and British companies, and the racial adulteration of its representatives in the Indian environment ; but the key is to be found in

events in Europe. For upon the union of Portugal and Spain the former was drawn into the web of European land politics to which the latter was committed, and the capacity of the Portuguese environment was too restricted to support both the ambitions of Spanish monarchs and the health of an extensive sea dominion. When the homeland power-house ceased to radiate energy along the sea lines this died of financial and human bankruptcy.

Similarly the Dutch, after a magnificent start given by the geographical intelligence of Linschoten and the masterly action of Jan Coen, were denied the fruits of complete victory by a series of distracting wars on the European sea-board. France, too, discovered that the achievements of La Bourdonnais on the Coromandel coast, the land dreams of Dupleix, and the brilliant naval actions of Suffren were of little avail so long as battles were lost to Anson, Hawke, and Nelson in Atlantic waters. The chagrin of the Dutch and French factors can be imagined when their efforts to out-manœuvre their British rivals in the Indian Ocean resulted in complete frustration as the tide of British sea-power swept out of the Atlantic into the eastern seas. British rule of the ocean was established while the fleets of the world were still under sail, and was confirmed by the industrial and commercial expansion of the homeland in the age of iron and steam.

The modern era, however, has witnessed the introduction of new elements into the nature of world sea-power, such as the emergence of the Pacific as a cradle of naval might, the use of the air as a third medium of strategical movement, the growth of rival industrial societies, and the increased dependence of world fleets on oil-power and specialist ports. These elements in themselves do not invalidate the concept of One Ocean but suggest modifications in the method of its organisation in view of the steadily mounting outward pressure from continental land-power.

In the first place, they reveal the absurdity of attempting to contain land-power by a thin red line encircling the world island and depending on over-extended sea transport. A seaway cannot be destroyed as a road or railway, and is much more flexible in its traffic, but it has vulnerable control points, and the vehicles which use it are exposed to attack for longer periods than their counterparts on land. Land-power on the other hand has the strategic advantage of internal communications, and for sea-power to counteract swift outward drives to the land perimeter, it must group on a regional basis that facilitates similar internal sea communication.

Secondly, in the eternal struggle in human affairs between the forces of agglomeration and deglomeration, the use of the air arm has swung the balance for the moment in favour of the latter. The ability to concentrate power rapidly must be accompanied by dispersal of the bases of action, in order that the destruction or seizure of some control points may be offset by recourse to alternative prepared positions. In the case of artificial control points, such as ports and naval bases, this can be accomplished partly by the deliberate planning of new bases and partly by resisting those economic forces which have resulted in the domination of a few giant ports. Emphasis on internal

regional organisation and improvement of shipping facilities on alternative routes can do much to reduce the vulnerability of natural control points such as straits.

Thirdly, the world diffusion of industrial cultures, and the development of new sources of energy upon which industrial structures can be raised, allow a greater measure of self-sufficiency in the various oceanic regions.

Thus it appears that for the maritime states of the world the counter to land-power lies in the organisation of powerful oceanic fortresses, with internal sea mobility, self-sufficient in most essential resources, but mutually supporting in the world setting. Such fortresses would express in strategic terms the identity of ocean communities and could be given political definition on the model of the North Atlantic community. The Indian Ocean, for example, affords an opportunity for the continuation of that policy. Considered strategically, the Ptolemy representation of the ocean as a closed sea is by no means unsound. Entrances into the theatre of power between the land masses of Africa, Asia, Australia and Antarctica are narrow, and for over four centuries the policy of seafaring nations of Western Europe in relation to the East has been controlled by the necessity of securing these vital sea gates to India and China. In modern political circumstances the closing of the NE and NW gates by land-power in the event of war has become a distinct probability, but no land power could completely deny access to the ocean by a sea power, nor totally destroy a strong ocean community. Facing northward, with the ability to concentrate force at will on almost any section of the long coastal zone, the initiative indeed must rest with sea-power. India never lost her independence till she lost control of the seas. For many years the sea-board peoples have looked to the ocean as the source of power and eventually protection, and, providing that young nationalism avoids land orientation and fragmentation, the sea will continue to be their common fortress.

Sea-power, however, is by no means entirely measurable in terms of battleships, bases, and sea distances. It depends also on a number of variable elements, including the character of the sea-board societies. When, at the beginning of the Christian era, Roman sea traders broke through the barrier of Sabaean and Nabatean Arab intermediaries into the Indian Ocean, they came into contact with an Indian society which in matters concerning the sea was in no way inferior to that of the ' Yavanas ' themselves. Flourishing ports such as Muziris existed in the Dravidian ' Southland,' while in the north the peoples of Gangetic India found outlets to the sea in the Gulf of Cambay and on the Orissa coast. Amazing voyages were undertaken by Indian colonists to SE Asia, as recorded in the sculptures of Borobodur in Java. Indeed, it becomes increasingly difficult to maintain that the Mediterranean was the earliest cradle of seafaring and that Indian society is by nature land-bound. While it is true that under the Mughuls the peoples of N India maintained less contact with the sea and came to regard seafaring as a low-caste occupation, one tends to forget that the Maratha fleets of lateen-rigged ' gallivats ' constituted

a great obstacle to British supremacy on the Bombay coast, and that Indian traditions of shipbuilding and seafaring later proved their value in the British maritime services.

A society's interest in the sea is not instinctive but is the resultant of many environmental influences, and therefore varies as these influences change. Some peoples are drawn to the sea by the physical nature and economic potential of its coastlands, others are driven to it when the land environment no longer provides at a given technological level the needs of a growing population. In India and other sea-board countries, population pressure on land resources is leading to a renewal of interest in the wealth of the seas. In the past a relief valve was found in overseas migration either as colonists or labourers, and this has left an inheritance of plural societies which forms one of the basic problems of the ocean community. To-day, relief is sought in the export of work rather than men and soil, and this solution implies not only an increase in the man-power engaged in overseas trade but a rise in the economic level of the society. Such developments and reorientation of economic and social objectives have important bearings on the question of sea-power, for this does not suddenly emerge under wartime conditions but is a steady growth from a nursery of peace-time commerce. Just as one can associate the growth of British naval power with the need for overseas markets, and with the sailors of the collier, fishing, and merchant fleets, it is not inconsequential to see in the men of the junks, sampans, dhows, and flat-bottomed, bar-hopping coastal steamers the man-power of future fleets of the Indian Ocean. The example of Japan demonstrates how rapidly technological solutions of demographic problems can stimulate parallel developments in sea-power. India then seems destined to play an important part, alongside Arab, Portuguese, Dutch, French and British societies, in providing the human resources of a powerful Indian Ocean Community.

Land Approaches

No discussion of sea-power, however, can neglect the land approaches to the sea-board, for a healthy and vigorous coastal border is as essential as are efficient internal seaways. The relation of sea-power and land bases, indeed, occupied the attention of the Portuguese sea lords four hundred years ago. The first Viceroy, Almeida, put one point of view when advising King Dom Manoel : " Let it be known for certain that as long as you may be powerful at sea you will hold India as yours, and if you do not possess this power little will avail you a fortress on shore," while Alfonso de Albuquerque was of the opinion that " Your Highness cannot be lord over so extensive a territory as India by placing all your power and strength in the navy alone . . . for this and not to build fortresses is the very thing which the Moors of these lands wish you to do." The ideas of Albuquerque prevailed in spite of considerable opposition, and by a series of rapid conquests he founded a sea kingdom that in some of its aspects " has no precise parallel in history, for it subjected a whole oceanic area to the condition

of territorial waters." From bases at Goa, Malacca, Ormuz, Mozambique, and Aden the Portuguese faced a northern land front of some five thousand miles, behind which maritime mobility maintained land fortresses against all landward opposition.

The changing patterns of trade and strategy in the Indian Ocean which followed the Portuguese era dimmed but never destroyed the conception of Albuquerque, and Britain step by step followed the same course to ocean control. While the Portuguese were content with coastal fortresses and interior trade organisation, Britain developed the idea further into land-power covering the sea frontages ; the nineteenth century witnessed the extension of imperial interests from port bridgeheads into the hinterlands as far as the natural land frontiers of sea-power.

At the same time, continental land-power expanded under like stimuli by a progression of frontiers until in the present century the two great forces, one of the sea and one of the land, have met along a common boundary that is surely unparalleled in the whole of world history. Pivoted on the natural rampart of the great Himalayan Divide, it is a frontier of high watersheds with its weakest sections on the western and eastern flanks. The Hindu Kush, for example, presents a much less formidable barrier than the succession of high deserts and deeply incised river gorges of the Karakoram Plateau, while further west at Herat only low watersheds divide the interior drainage basins of Lake Aral and Seistan. This is classic frontier country described by many British frontiersmen such as Durand, Curzon and Holditch ; recently, an admirable survey of the political significance of the Hindu Kush region has been written by an ex-British Minister in Afghanistan, W. K. Fraser-Tytler. Dominating the complex relationship of tribal society with the rival ambitions of Russia and Britain, the alternation between forward and ' back to the Indus ' policies of the British Raj, the changing fortunes of the dynasties who have ruled from capital cities such as Balkh, Kapisa, Kabul, Ghazni and Kandahar, and the work of the various boundary commissions, stands the majestic mountain range itself. Now crossed by a motor road completed by Nadir Khan in 1933 through the Shibar Pass, its defiles have been used by many land conquerors of India. In every case, however, once the impetus of conquest moved forward into India from the strategic Kabul-Ghazni-Kandahar axis, the fissiparous tendencies of the divide isolated the leading elements from their original homeland. But the strength of a natural frontier is only relative to the human forces which approach it, the direction from which they come, and the technical level of their culture. Fraser-Tytler realises this and concludes that " the Hindu Kush is not in itself a structure which can safeguard the integrity of India. It marks the ethnic, geographic, and economic division between Central and Southern Asia, and it is a strategic frontier on which a stable government may rest. But no mountain range, save possibly the Pamirs, is able of itself to ensure stability if the power behind it falters."

The same opinion is expressed by Olaf Caroe [see *S.G.M.*, 67 (*2*) : 131-132] with reference to the countries bordering the Persian Gulf :

" Although the shadow of Muscovite Communism falls over Southern Asia from the north-east and north-west, it is on the western approaches that geography opens a road, and there the ultimate prize is greater. . . . The withdrawal of the shield of British protection from India has in no way lessened the need for the defence of the succession states against attack. . . . Something has now to be put in place of British power as exercised from India, something still wider based." The solution Caroe finds in a concert of powers based on the Persian Gulf, which would avoid the weaknesses of the Saadabad Pact of 1937 and of the Pact of the Arab League of 1945. The former, comprising the states of the ' northern screen '—Turkey, Persia, Afghanistan, and Iraq—has not the resources necessary to deny land-power access to the highways of the Arabian waistland and the ' wells of power ' of Tertiary fold systems. The latter suffers from the fact that it was brought into being by concerted Arab opposition to the establishment of Zionism in Palestine, is oriented towards Cairo, and is unable to provide a common forum for Persian Gulf affairs. Caroe suggests a Treaty for Persian Gulf defence modelled on the North Atlantic Treaty, with Pakistan and India closely associated, and underwritten by external powers with interests in the region—e.g. Britain, the Netherlands, Australia, America. In other words, he sees the danger of allowing the wider concept of the Middle East which gained support during the second world war, when the main threat came from the northern shore-lands of the Mediterranean, to confuse political orientation now that Central Asia has re-assumed its ancient threat.

Although, as W. B. Fisher [see *S.G.M.*, 67 (2) : 131] has argued, physical and social unity tends to support the recognition of the wider " Middle East " as a single geographical region, from a strategic point of view its heart, the Persian Gulf, belongs to the Indian Ocean Community, and the regional grouping most suitable for the defence of SW Asia will not be found around the shores of the Mediterranean. The trans-Persian routes, used during the war to supply Russia with vital raw materials, are the natural lines of outward movement too and lead to the Indian Ocean. Bombay, founded as a bridge-head on the periphery of Mughul land-power, grew as a springboard of British interests in the Persian Gulf and Red Sea, and in the event of future conflict there, it would be called upon to play, along with Colombo, Karachi, and East African bases, a vital rôle in preserving the integrity of the ocean sea-board and protecting the important oil resources.

A similar case can be made with regard to the eastern flank in SE Asia. Here the frontier runs out along the watersheds of the Brahmaputra, Irrawaddy, Salween, and Mekong towards the Gulf of Tonkin. The mountain ramparts in this region, though generally lower than in the west, are wider, and heavy forest presents a great barrier to movement. For centuries external interests in the area were confined to the sea-board and, although peopled by folk from inner Asia to whom mountain ranges represented lines of ingress rather than obstacles to movement, its political destiny has been controlled by seamen ranging from the Indian rulers of Sri Vijaya and the Moslem Sultans of the lower riverine communities to statesmen such as Stam-

ford Raffles, whose geographical prophecies still brood over those eastern waters. As in almost every section of the Indian Ocean coastlands, its economic development and orientation have been controlled by the construction of ports, railways, and roads to feed down to tide water the products of immense river basins. No roads across the watersheds into Southern China were deemed necessary so long as coastal shipping was available and ' back-doors ' into China were used only when the unity of the sea was broken. These back-doors, such as the Burma Road and air routes ' over the hump,' have become the front-door steps of possible aggression towards the Indian Ocean theatre.

Nor is this aggression to be conceived only in the form of land or air armies. The insidious infiltration of cultural ideals from inner Asia is no less deadly to the concept of ocean community, and in Southern Asia where old societies are disintegrating and where the springs of human action tend to be as much cultural and political as economic, the danger of confusing national aspirations with the negation of traditional economic allegiances is particularly acute. In SW Asia there exists the cultural barrier of Islam, but in the plural societies of SE Asia, as Dobby has recently pointed out, " each political unit represents in miniature the variety of peoples and interests which is typical of SE Asia as a whole." This zone has been one of convergence and cultures, and peoples with enormous contrasts in stages of development are found in juxtaposition. C. A. Fisher and K. M. Panikkar suggest a solution to this fragmenting variety in some form of regional political grouping, the former quoting the *Manifesto of Representatives of the Countries of SE Asia* issued at Bangkok in 1947 as the first step towards such an organisation and supporting the possibility of collaboration on economic grounds, the latter suggesting a reinforcement of ancient associations with India. It will take a considerable time, however, for peoples who have lived facing outward to establish an inner unity which has grown and not been imposed, and there is a great danger of writers with western training assuming that constitutional forms which even politically mature states find difficult will be acceptable to Asian societies.

Nevertheless a common pattern emerges in both political and geographical writings on these land approaches to the Indian Ocean. In spite of great internal variety, both flanking regions have a unity which may eventually be given political expression, but in the broader view their security rests first on a strong Indian sub-continent, and ultimately on their identity with an Indian Ocean Community. Only thus can defence in depth be achieved. Apart from political considerations, however, much can be accomplished in the economic field towards strengthening the resistance to the expansion of land-power. In recent years a number of plans have been proposed which have both economic and strategic significance to the Indian Ocean Community. They may be grouped into two categories : first, those attempting to stimulate the economic development of the sea-board regions, and secondly, those concerned with the efficiency of the seaways, by improving port facilities.

Economic Development

The outstanding feature of the *Colombo Plan for Co-operative Economic Development in South and South East Asia* is the recognition that " The political stability of the countries of the area is possible only in conditions of economic progress and a steady flow of capital from more highly developed countries is essential for that purpose." Capital has flowed from the western world into the Indian Ocean ever since the times when Pliny complained of the adverse trade balance of the Roman Empire with the east. Sometimes that capital was applied to economic development of new lands and resulted for example in large scale redistributions of population, at other periods it was canalised and hoarded with resultant economic stagnation. Its varied application set alongside varied natural resources has produced great contrasts in the stage of economic development reached by the various oceanic states, but all compare unfavourably with the advanced states of the western world.

The essential economic problems of each country differ, and no standard formula of development can be applied throughout. India, her economy strained by war and partition, is faced with the task of feeding 350 million people, whose numbers are increasing rapidly. Pakistan, for which partition has meant the loss of industry and professional classes and the added burdens of over seven million refugees to settle and large military commitments, is struggling with the contrasted problems of a divided dominion. Ceylon suffers from an economy overdependent on the price of tea, rubber, and coconut products in distant markets ; the same dangers of over-specialisation are realised by the states of SE Asia, where in addition the ravages of war have had to be repaired. Each state was therefore invited to prepare individual six-year programmes of economic development and submit to the Commonwealth Consultative Committee an estimate of their financial requirements for carrying out such schemes. The relative application of capital to the various aspects of their national economies offers a good guide to what each government believes to be essential for progress.

		INDIA	PAKISTAN	CEYLON	MALAYA & BORNEO	TOTAL
Population (millions)		350	82	7	7	446
%	Agriculture	33	32	37	12·1	32
	Transport	38	20	22	19·5	34
	Fuel and Power	3	18	8	18·7	6
	Industry and Mining	10	19	6	·2	10
	Social Services	16	11	27	49·5	18
Total Outlay (million £)		1379	280	102	107	1868

The figures for agriculture in addition to measures for improving the low crop yields include large multi-purpose projects, such as the Damodar Valley Scheme, the Hirakud Dam on the Mahanadi, and the Bhakra and Nangal dams on the Sutlej, in India ; large scale irrigation colonies in the dry zone of Ceylon ; and the extension of food-producing farmland in Malaya. The low percentages for fuel and

power are partly accounted for by the fact that many of the essentially agricultural schemes include subsidiary production of H.E.P. Under transport expenditure the greatest outlay will be incurred in improving the network of railways and feeder roads, although in Ceylon ports and roads are given priority. Although at first glance the total expenditure may seem enormous, the programmes involve a relatively small expenditure per capita. Indeed, viewed against the rapidly increasing population and inflationary financial tendencies, the expenditure will do little more than maintain the present position. On the other hand, most of the outlay is to be on the provision of basic facilities whose benefits are cumulative, and the plan will provide at least a breathing space for the training of technical labour without which the application of capital is meaningless. The lack of trained technicians is also stressed in the *Report of the U.K. Industrial Mission to Pakistan.*

One of the immediate results of the rise of nationalism in Southern Asia has been hostility to foreign capital ownership or investment in national resources, but this attitude is being modified as the necessary capital and technical skill fails to mature from within. In 1948 a report on the *Organisation and Development of Electrical Power* was submitted to the Pakistan Government by Sir H. Howard, and British firms are now advising on the development of power stations at Malakand, Rasul, Dargai, Karnaphuli and Warsak. Although the sources of water power are distant from industrial centres such as Karachi, and although Pakistan will probably be never able to dispense with steam generation, it is upon hydro-electricity that the long-term developments of industry must depend. Industrial development, however, is complicated by the wide separation of West and East Pakistan. For example, the production of sulphate of ammonia is urgently required as a fertiliser in E Bengal, but this area lacks the necessary supplies of coal and calcium sulphate, while in the Punjab, where these raw materials are found in limited amounts, a chemical factory would work under the great handicap of high rail freights to Karachi, and then sea freights to Chittagong heavier than those from Britain. Better prospects are envisaged for cotton and jute manufacture : in E Pakistan, for example at Narayanganj, one company has been formed to erect three jute mills of a thousand looms each, while in the Indus valley cotton manufacturers have extended invitations to British firms to establish joint enterprises producing for the home market. The capital equipment for such undertakings will come in the main from Britain. The schemes of economic co-operation with British firms in Pakistan can be paralleled in Saudi Arabia, where recently a combined Anglo-Arabian company has assumed responsibility for the economic development of the country. Thus do the old forms of managerial or agent economy give way to new economic organisations more in keeping with young nationalist aspirations.

These developments in Southern Asia also exemplify the process of diffusion of industrial cultures which is perhaps the most outstanding characteristic of present world economy. During the nineteenth century, when world production was oriented towards the coal power

of the North Atlantic community, in primary production regions the first stage of economic development was the building of a basic transport network and large units of production under foreign management. The second stage became possible when primary production was sufficiently rewarding to allow the purchase of capital equipment from the older industrial centres and usually consisted of the growth of industries at the ports from whence raw materials flowed and finished products were distributed. The third stage comprises the migration of industry into the port hinterlands with the attractive forces of materials and markets and the development of new sources of power, while the multiplication of nations and growing economic nationalism have both stimulated and multiplied this process. As in the case of the states of Southern Asia, so with other regions of the ocean community, their needs for economic development depend on the stage they have reached in this general process.

In the British territories of East Africa the ill-fated scheme for the mechanised production of groundnuts, by placing emphasis on the provision of transport facilities and large units of production, was obviously formulated in terms of the first stage of economic development. Its failure as originally planned must warn but not entirely discourage the projects recommended by other economic missions to the area, such as the *East African Rice Mission* and the *Sorghum Mission to certain British African Territories.* The former, indeed, stresses the necessity for rigorous experimentation in trial plots prior to full implementation of their proposals which include both a drive for increased peasant production and large-scale reclamation of rich swamp soils, such as those of the Baratse Plain, for rice culture. Increased rice production in Africa would have far reaching effects on the trade structure of the Indian Ocean community. The latter report also emphasises the importance of pilot schemes and experimental work on rotations, fertilisers, yield, spacing and storage for the large projects of mechanised group farming at Mwea and Esageni in Kenya, Adilang and Kiryandongo in Uganda, and on the Wami plain in Tanganyika.

There is also a growing realisation that any large application of capital must be preceded by a detailed examination of the present utilisation of land and water as a basis of assessing economic potential and establishing priorities in development. This principle is of course not confined to territories at stage one of the process outlined above. In Australia, for example, many of the present economic problems spring from the situation that capital imports and labour imports were not synchronised in the past and resulted in developments in land settlement and transport which under present economic conditions appear as maladjustments. That a more realistic attitude to environmental opportunities is now prevalent is demonstrated by Wadham and Wood in the recent edition of their valuable book *Land Utilization in Australia,* by such publications as the excellent *Regional Planning Atlas* of the economic resources of Tasmania, and the work of members of the Department of Post-War Reconstruction at Canberra. In a land which has been described as a vast experiment

in transportation, reassessment of potentialities invariably means readjustment of transport facilities. The Payne and Fletcher Report suggested that one of the most important obstacles to the development of the Northern Territories had been a misdirected transport orientation towards South Australia, and the Clapp Report has recommended large measures for the standardisation of Australia's railway gauges and construction of new lines. That strategic as well as economic circumstances have influenced the proposals for transport development is evident.

" International aspects of an overcrowded East and the question of defence have cropped up only once in a while to cast their shadows over our sparsely settled North. But with the war and the threat of invasion the need for stimulating a greater development of Australia north of Capricorn has assumed vital importance. To-day Asia and the islands to the north have a new significance for Australia."

In the political sphere as in nature a vacuum is abhorred. The same sentiment is echoed by Gentilli : " Of over 12,000 miles of Australia's coastline 9,000 are on the Indian Ocean. They are Australia's window on the world. Through this window in the Indian Ocean Australia can see millions of people at work . . . they are building up their economic strength and they can do with help in this direction. Australia's geopolitical situation is at the crossroads of the Indian and Pacific Oceans, but with a crowded part of the Indian Ocean and an empty part of the Pacific close at hand. Is it possible to ignore the crowds and turn to an empty space ? " It is significant that the three meeting places of the committee which produced the Colombo Plan were London, Colombo, and Sydney.

Port Development

Economic plans such as those considered above will lead eventually to an increase in ocean trade, and this in turn will increase the strength of sea-power. Economic needs and strategical needs are working towards the same objective. An examination of the present port facilities of the Indian Ocean shows that, for example compared with the Portuguese period, the British era has witnessed a notable concentration of trade on a number of major ports. Factors in this concentration have been the focussing effect of railways, special freight tariffs quoted by railway companies with terminals at major ports, economies usually associated with large undertakings, and the increasing size of vessels. The latter has been instrumental in eliminating those ports lacking either physical advantages or financial resources necessary to keep pace with rapidly mounting demands of the shipping interests. When iron replaced wood, the structural limits imposed by the latter were soon surpassed and the economies of carriage resulting from using larger units became the stimulus to build ever larger ships. The rapid increase of size during this century is perhaps most strikingly shown by the oil tanker, which in many ways is becoming the measuring rod of port requirements. Tanker tonnage has, for example, revolutionised the trade of the Suez Canal, which now receives over

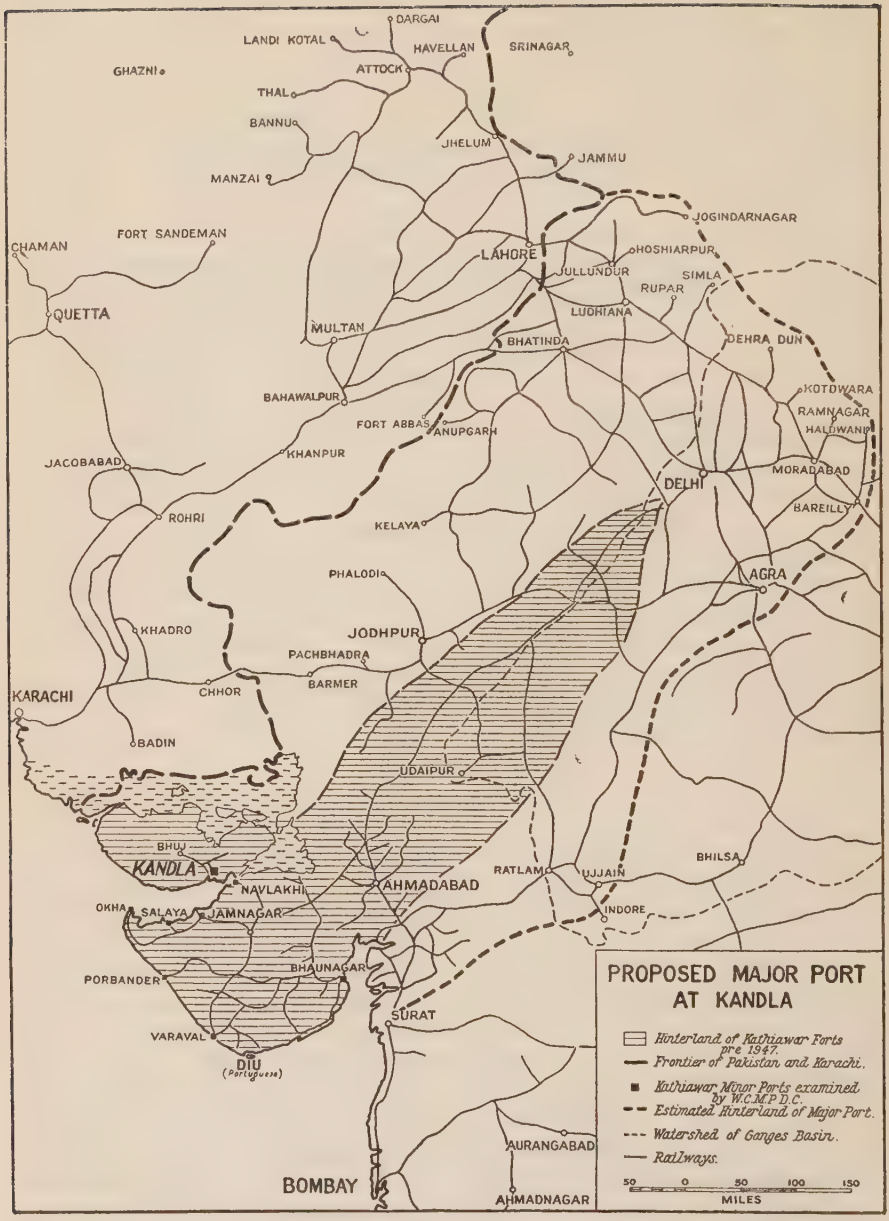

Fig. 1. The projected major port of Kandla and the hinterland it is to serve. Proposed by the Indian West Coast Major Port Development Committee, it has been necessitated partly by the alignment of the Indo-Pakistan frontier and partly by increasing congestion at Bombay.

60 per cent. of its traffic from the Persian Gulf region, and the canal authorities are faced with the prospect of further improvement beyond the draught of 34 ft and beam of 94 ft realised before the war.

In the constant struggle between shipping interests and port interests eventually a stage is reached when the cost of further deepening channels and providing special facilities as expressed in terminal charges counterbalance the economies effected by larger vessels. In addition, over-concentration on a few ports tends to result, with an increase of total trade, in the occurrence of traffic bottlenecks at the port and at the approaches to it, which means slower turn-round of shipping. Thus the forces which have led to concentration contain within themselves the counterforces of dispersion, and the provision of exchange points between land and sea transport reflect the balance struck at any given period.

In the Indian Ocean at the present time certain tendencies in port development can be recognised. In the first place, the creation of new major ports is envisaged to serve more adequately the growing trade of extensive hinterlands. In East Africa the groundnut scheme included the expansion of Dar es Salaam to an eighteen-berth port capable of handling a million tons of cargo annually, while during the war large additions to the quayage of Kilindini-Mombasa were made to handle the extra burdens resulting from the loss of eastern port bases. Before 1940, Kilindini was a five-berth port handling on average about 600,000 tons per year, but in 1948 over two million tons passed through the port, and it is planned to construct 24 more berths north-westward along the shores of Port Heitz, as Mombasa Island itself is rather small to accommodate a major port. To the south, along the 1600-mile coastline of Mozambique, port facilities have also been improved with a view to handling the potential trade of South Central Africa. In 1947, preliminary work began on a new port at Nacala, which is to be developed into the third port of Mozambique and linked, as are Lourenço Marques and Beira, to the railway systems of the interior British territories. It is situated on a deep, well sheltered inner cove of the Great Bay of Fernão Veloso.

Across the Arabian Sea on the west coast of India, proposals for new major ports have been considered by the West Coast Major Port Development Committee who reported to the Government of India in 1948 and 1950. Their recommendation for siting a major port at Kandla (Fig. 1) has been accepted. It is a natural deep-water harbour which presents no serious reclamation problems, is sheltered from the SW monsoon, and has a tidal range which will not materially affect the working of ships, but the construction of broad- and metre-gauge railways will be necessary to link it with the network of its proposed hinterland. The project has been the outcome of partition—which removed a considerable area of the hinterland of Karachi—and of the increasing congestion at Bombay. Further south, on the Malabar coast between Mormugao and Cochin, the committee recommended another port at Malpe. At present this is a small lighterage port situated 164 miles south of Mormugao, at the entrance to a small river protected offshore by a series of granite islands. There is ample space

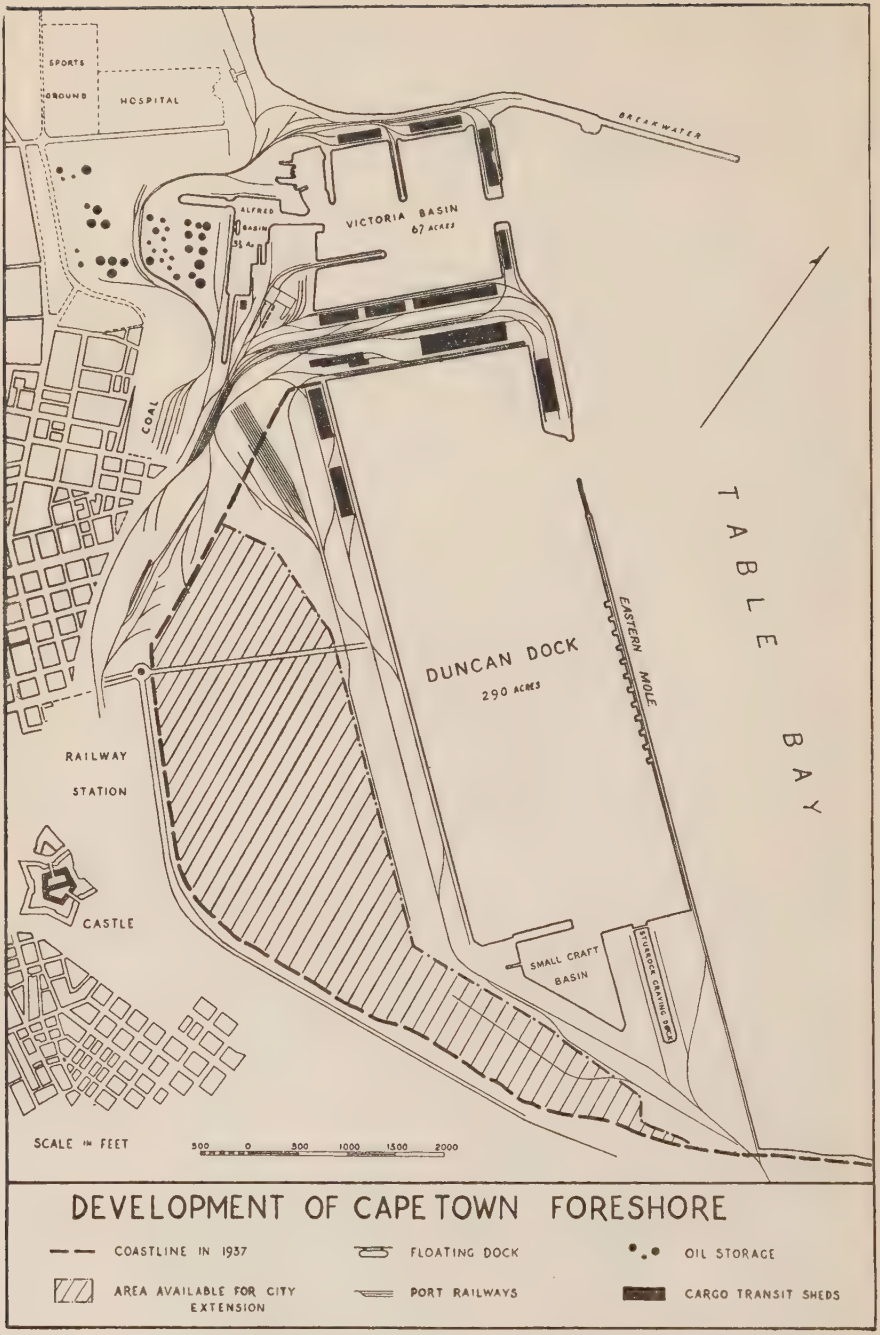

Fig. 2. Recent development of Table Bay Harbour has added considerably to the capacity of the port and repair services in South Africa.

for a port estate, and for industrial development hydro-electric power can be supplied from the station at Jog Falls. However, for the moment, development has been postponed in favour of protective works for the many minor ports of the coast which are normally closed during the SW monsoon period.

On the east coast of India the most important development of recent years has been the construction of ship-building yards at Vizagapatam, which have been producing vessels up to 12,000 tons to fulfil India's policy of increasing the percentage of Indian shipping engaged in home trade.

Secondly, the creation of new states tends to encourage the duplication of port facilities. For example, the partition of the Ganges Delta region resulted in the severance of the primary production of E Bengal from its customary outlet at Calcutta. The Pakistan Government therefore plans to develop Chittagong into one of the major ports of the east. A government-owned fleet of river boats is to supplement rail facilities by linking the port with the immense network of inland waterways in the delta. At the same time the Chittagong valley is to be the scene of a large multi-purpose project on the lines of the T.V.A., and it is estimated that exports and imports will increase to over $2\frac{1}{2}$ million tons a year. To handle these increases, 14 extra berths are to be constructed at Chittagong ; in addition, the Pakistan Navy is engaged in surveying the rivers Meghna, Breswar, and Pussar to find a site for an in-port.

Thirdly, strategic and economic considerations are placing renewed value on the seaways of the southern ocean. In South Africa and Australia this is reflected in large port improvements and future plans. Fig. 2 shows the development of Cape Town during the decade 1937-1947. The construction of Duncan Dock, opened in 1943, has not only added greatly to the capacity of the port but by extending the Table Bay foreshore has provided much needed building space for central Cape Town. Included in the construction was the Sturrock Graving Dock, and this in addition to those built at Durban and East London has greatly enhanced the repair services at the SW gate to the Indian Ocean. The security of the approaches to the gate has also been improved by the occupation of Marion and Crozet Islands.

This action by the South African government is paralleled by the Australian decision to take over Macquarie and Heard Islands. At Melbourne one of the world's largest suction dredgers, purchased from Bombay in 1931, is at work reclaiming land to the west of Victoria Dock near the heart of the city for the New Appleton Dock, which is to be the first step in a £4 million programme. As in South Africa, here too, oil storage capacity has been expanded and a £1 million project has been approved for the construction of an oil refinery at Paisley, a station on the Geelong railway about eight miles from the city, to which oil will be piped from tanker discharge points at Yarraville.

Finally, all ports of the Ocean are carrying out repair and reorganisation programmes necessitated by the strain or physical damage they endured during the war. Some, such as Bombay, are seeking to escape from the handicaps and dangers of too confined sites ; others, such as

Singapore, are attempting to balance more efficiently the varied demands made by air, sea, and land services ; while a number, such as Darwin, are starting to build all over again (Fig. 3). But the general recovery has been remarkable and affords one more example of the resilience of sea trade.

In our concern with events on the world island of Mackinder we should not close our minds to equally valid and powerful unities. In

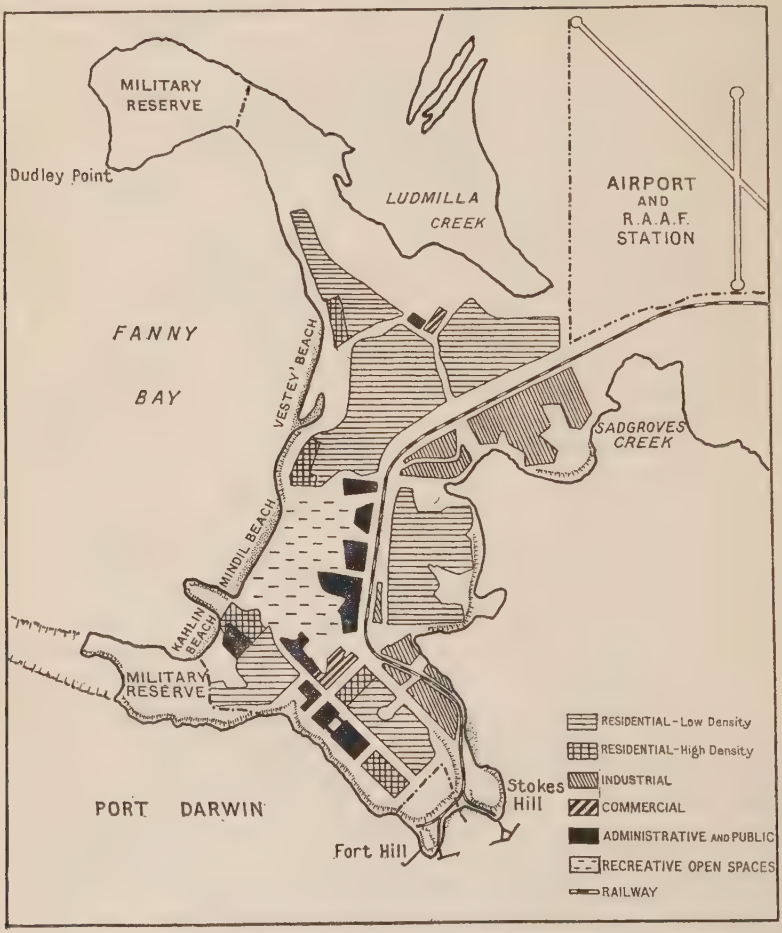

Fig. 3. Functional zones of the planned sea-and-air port city of Darwin.

this essay an attempt has been made to draw together the varied strands which go to the making of one such unity, and review it in the light of recent developments and literature. Each plan and each concept derives true significance only when related to the whole, and this whole rests basically on the sea and sea-power. Just as a change in sea-level results in countless individual adjustments in the river basins opening on to the ocean, so in human affairs the destiny of each sea-board society is inextricably linked to the level of the ocean community.

BOMBAY

Reclaimed eastern foreshore of Bombay Island. Country craft 'bandars.' Cotton and manganese depots on the flats won from the swampy northern section of Bombay Harbour.

CALCUTTA

The recently constructed Howrah Bridge over the Hooghly, from the commercial heart of Calcutta to the west bank immediately north of the Howrah railway terminus. Kidderpore Docks lie downstream of this section of river craft and 'ghats.'

SINGAPORE DOCKS

Looking eastward along the northern shore of Keppel Harbour to Empire Dock, Victoria and Albert Dock, and the East Wharf.

DARWIN

Part of harbour (1948). Darwin was badly damaged by Japanese aircraft and is being re-built. Planning envisages a resident population of approximately 20,000.

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RURAL PROBLEMS IN THE BORDER COUNTIES

By H. P. White

Steadily declining population densities are common in most areas of hard physical environment where living standards are above the world average. The Massif Central, New England, Mid-Wales and Western Ireland have long been centres of rural depopulation, and a similar exodus from the Swiss Alps has been averted with difficulty at the cost of lavish indirect subsidies.[1] Any approach to the problem as it exists in Scotland must therefore keep in full view both the world-wide extent and the long history of the phenomenon.

Over much of rural Scotland the effects of depopulation are now being felt, though popular attention has tended to be focussed unduly closely on the Highlands, where the hard truth appears to be that it is inevitable. Here the basis of the economy, agriculture, is in full decay. Crofting, though picturesque, is anachronistic, and hill farming is barely solvent. Alternative economic activities, to which the region is well suited, such as forestry, power generation and tourism, require but a small labour force. The Southern Uplands, however, form on the whole a region of highly developed and economically sound agriculture, which, by its ability to produce healthy young stock, plays an integral part in the British agricultural economy. Any further fall in population densities must therefore adversely affect the high farming practised over most of South Eastern Scotland.

In its modern form, the causes of rural depopulation are manifold and often obscure, and there is certainly no single panacea. Many authorities appear to ignore all but the more purely economic factors,[2] and there is little agreement as to their order of importance.

Before examining some specific examples, let us list a few of the general causes of rural depopulation. Basically emigration from such areas as SE Scotland is due to a desire to better one's material lot, an attempt to obtain economic advantages not present locally. Mankind is also gregariously inclined. Even primitive man dwells in communities, and modern technical developments have tended not only to emphasise this habit, but to increase the size of the communities. The attraction of working and playing collectively, in factories and cinemas, is deeply ingrained in modern life. It may or may not be a desirable development, but it cannot be ignored, even if it can be arrested.

Technical progress has decreased hours of work and obviated much sheer physical toil in agriculture. Thus more time and energy are available for leisure and entertainment. The countryman now tends

to find the latter in the nearest town, for which purpose the more remote areas are at a disadvantage. Greater ease of communication, together with more widespread education, have played their part in spreading the knowledge both of more favoured rural areas and of towns. In addition, knowledge of the latter and their often illusory opportunities for betterment tend to be somewhat superficial.

Thus emerges a striking paradox : any increase in rural amenities stimulates the desire for a way of life better satisfied by town than country. There are indications, for example, that housing improvement may have this effect.[3] Increased transport facilities also quickly lead to disintegration of the old rural spirit of community, without which the more remote areas would lose their population even more rapidly, as in the case of some of the Outer Isles. This paradox has yet to be resolved and is worthy of attention.

The more isolated a community, then, the more active its communal life. Contrary to some authorities,[4] rural life is more fully integrated where isolation is greatest.

Another major factor is the lack of alternative employment for those unsuited to agriculture by age, infirmity, training, or temperament. A whole family may emigrate which might otherwise stay if there were other work for some of its members, and many individuals leave for this reason. This bears most heavily on the younger women as, now that domestic service has fallen into disrepute, their one alternative has vanished.

Thus there is a greater incentive for unmarried women to leave the country. In addition, where marriages take place between town and country dwellers, another consequence of increased circulation, the couple are more likely to settle in town, for if the husband be a townsman his work will be there, and if the wife be a townswoman she is often temperamentally unsuited to the country.

The factor of bad housing can be over-emphasised, and improvements, of which there have been many, especially in East Lothian and Peebles-shire, do not go all the way to meeting the problem. Cases can be instanced of men preferring to remain in sub-standard urban housing rather than take agricultural employment at equivalent wages and with better housing.

Finally, it must be faced that in our urban civilisation agriculture has an unduly low social status. The legend of the straw-chewing labourer and the ' what's good enough for father ' attitude of the farmer dies hard.

With a view to studying specific examples of these and other problems, three parishes, Humbie, Broughton and Westruther, each typical of its surrounding area, were examined. These parishes have certain features in common. Each includes both ' hill ' and highly farmed ' inbye ' land, and therefore the physical margin of present-day cultivation where, by reason of altitude, slope, and exposure, it merges into uncultivated ' hill.' They are also likely to include the economic margin, beyond which the farmer is less able to make from his land an adequate profit, defined as a worker's wage plus 3 per cent. interest on capital invested.[5] It is these marginal areas that are most affected

by economic and demographic changes, and all three parishes reflect fairly closely the population trends common to rural Scotland generally. Finally, all are remote and all are solely dependent on agriculture.

Humbie in East Lothian is situated on the northern flanks of the Lammermuir-Moorfoot range and is typical of the string of parishes in a similar situation extending from Innerwick westwards to Temple. 8770 acres in extent, it lies athwart the southern limb of the East Lothian basin and the Southern Upland faults. It is underlain by Lower Carboniferous, Devonian, and Ordovician rocks with a mantle of glacial till varying greatly in thickness and composition, from over 40 feet of sands in the North West to a few feet of clay below the Lammermuir scarp. The latter, generally not too steep to plough, is the main scenic feature. Some 200 to 300 feet high, it rises to about 1000 feet above sea level in a line of smooth, even summits, fretted and gashed by numerous streams.

Northwards the land falls away in a series of erosion surfaces from 850 to 500 feet, deeply dissected by a drainage system made up of two parts. These are consequents flowing north-westwards and strike streams occupying glacial spillways with a north-easterly trend. Thus there are no extensive areas where slope, one of the principal factors influencing agriculture in Scotland, is either too steep or too gentle to inhibit arable agriculture.

Westruther, Berwickshire, is a typical marginal parish on the southern flanks of Lammermuir, belonging neither to it nor to the Merse. Some 14,500 acres, the area is developed on Devonian sandstones and conglomerates over the greater part and Silurian greywackes and shales on the higher northern part, while igneous outcrops stand up as marked features. Solid rocks seldom appear at the surface, being buried under extensive deposits of glacial till and of peat. The relief is subdued and there is little dissection. This, together with the extensive development of a surface sloping south-eastward from 750 to 650 feet, has given rise to difficulties in drainage and, consequently, in agriculture.

Broughton in Peebles-shire lies athwart the Biggar Water - Tweed Valley. It is typical of the Upper Tweed, including rugged ' hill,' isolated valleys, and some good arable, but is atypical in being relatively accessible and containing a sizeable nucleated village, the centre of the Broughton County District of Peebles-shire. The topography is typical of the Southern Uplands with smooth, rounded hills and deep valleys modified by ice. Height varies from 600 feet on the Tweed to 2250 feet, the summit of Cardon. The parish is an amalgamation of three former parishes, each a natural unit. Broughton was the basin of the Broughton Burn, a left bank tributary of the Biggar Water, Kilbucho was that of the Kilbucho Burn, and Glenholm that of the Holms Water, both right bank tributaries. The broad haughs of Tweed and the Biggar Water would have been too ill-drained to have been of value. The area under cultivation is severely limited to the better drained haughs and lower slopes.

The climate of these areas is much modified by altitude. Stapledon[6] contends that over most of Britain there is increased climatic ameliora-

tion between 1500 and 700 feet, but below that level altitude becomes a negligible factor. This does not apply to our area where the effective upper limit of wheat cultivation is passed at about 400 feet, malting barley at 650, other barley at 700-800, and oats at about 1000. Wheat and malting barley are therefore grown only in the lower parts of Humbie, and other barley in Humbie, and Westruther.

The period with a mean monthly temperature below 42° F., above which germination and growth take place, varies with aspect and altitude, from about four months in the central zone of Humbie to six months in the lower parts of Broughton. In the latter place, where air drainage is impeded, the valley floors suffer from killing frost even in summer.[7] The effective limit of cultivation in Broughton is about 900 feet.

Even more important is the effect of wind, though data are lacking. The trend of Lammermuir and the Biggar Gap and the open nature of the Westruther erosion surface expose the land to the strong south-westerly winds. At Thurston, East Lothian, the wind is from the sector South to West for 174 days a year and only forty-eight are calm.[8] The need for shelter-belts is therefore obvious. Unfortunately, the economic stresses of recent years have led to extensive felling of shelter-belts. In all parishes there are many such fellings, and only in Humbie is there extensive replanting. Any rehabilitation requires the planting of well sited belts and clumps for the protection of crops and stock.

Apart from 'services,' agriculture is the sole economic activity and by reason of altitude is principally in the form of stock farming. Apart from Humbie, there is little cash cropping, and cultivation is for the provision of feed. The proportion of land under cultivation varies considerably. In Humbie it is six sevenths, in Broughton one quarter, and in Westruther just over one half. The majority of this land is under the plough, though grass is naturally the chief crop. The normal Scottish six-course rotation of grain, roots, grain and a three-year ley is followed, though the length of time the ley is left down varies from two years on the better land to eight on the poorer.

The rough grazings, which make up the remainder of the area, the non-agricultural land being of very minor extent, are both on enclosed land and on open hill. The latter are of variable quality and stocking capacity. The dominant vegetation is heather and nardus, while bracken is a serious problem over large areas of Broughton and parts of Westruther. The grazing of hill land by cattle, a practice greatly encouraged by the hill cattle subsidy, does much to encourage the growth of better grass. In addition some liming and reseeding has been carried out, especially on Cardon and other farms in Broughton. Nevertheless, much yet remains to be done.

Enclosed rough grazings are in three categories : fields above the present limit of cultivation, areas where lack of slope inhibits drainage, and areas too steep for cultivation. Though some of the upper fields have been broken up in recent years, much remains to be done. For one reason and another these fields are usually in poorer shape than open hill that came under the plough. The second type is confined to the Westruther surface. As good fields have been carved out of

this area in the past, there is no technical reason preventing further reclamation. The present cost of drainage would, however, be beyond the means of the present owners or tenants, and the project would require State aid. In this area, too, shelter-belts are urgently required. The third class of rough grazings are found on the sides and floors of the deep valleys in Humbie.

Of the cultivated land, the greater part is under grass, over 7000 acres of permanent grass and 5500 of leys, the latter figure being half the tillage area. The permanent grass is of poor quality, mainly outrun leys, while the latter usually are of good quality and include clover, cocksfoot and, to a lesser degree, rye-grass.

Of the 5500 acres of other crops the most important are oats, 2698 acres, and turnips, 1338 acres. The acreage of oats has greatly increased since 1939, but that of turnips has continued to decline owing to the high labour costs involved in their cultivation. Silage is replacing them as winter feed in Humbie but not elsewhere. Cash cropping —in this case, wheat, malting barley and potatoes—is virtually confined to Humbie.

Stocking density varies considerably. In 1949 there were 2284 stock units [9] in Humbie, 2551 in Westruther, and 2601 in Broughton. This represents a density per 100 acres of arable land of 39·3, 38·9 and 52·6 and per 100 acres of agricultural land of 30·0, 19·6 and 12·3. The striking difference in these figures is due to the small area of cultivated land in Broughton and Westruther and to a concentration on cash cropping in Humbie. The latter is the only one to show a decrease in stock units since 1939. This indicates that the war-time increase in agricultural output took the form of cash cropping in Humbie and animal production in the other two. Each parish therefore has increased its specialisation in the products best fitted to the environment.

Sheep are kept in large numbers, 46,000 in 1949, and in Westruther are the principal item in the farm economy. As a general rule, Blackfaces are kept on the open ' hill ' and Half-Breds or Cheviots on the ' inbye.' One farm in Broughton specialises in breeding pedigree Blackfaces, which are kept on ' inbye.' It is felt in some quarters that this method of breeding has contributed to lowering the resistance of hill flocks and increasing susceptibility to disease.

Just over 4000 head of cattle were kept in 1949, equally distributed between the parishes. Only in Broughton were dairy cattle important, and here they are the mainstay of the economy. They have increased greatly in recent years, having doubled in number since 1935. There are eleven farms producing liquid milk, ten of which are Attested. In addition, three farms with hill outrun specialise in the breeding and rearing of Attested beasts, for which the environment is well suited. Beef cattle are run on the ' hill ' in each parish, but only in Humbie are there farms specialising in beef production. These, Whitburgh Mains and Duncrahill, are regarded as among the best farms in SE Scotland.

In each parish a marked feature is the economical use of labour, and the increased production since 1939 has been achieved with no

corresponding increase in the labour force. Under present circumstances there is little possibility of increasing efficiency further in this respect. In Humbie one person was employed per 57 cultivated acres and 18·4 livestock units, in Westruther the corresponding figures were 67 and 25·5, and for Broughton 44·9 and 24·3; but as there is such a large area of hill, the figure of one person per 197·4 acres of agricultural land is more realistic. Once again these figures underline the essential differences between the parishes: Humbie, intensively cultivated with equal emphasis on cash cropping and livestock, Westruther, extensively cultivated and with emphasis on breeding and rearing sheep, and Broughton with intensive dairy farming on a small portion of its total area and with extensive hill farming on the rest.

There is no question of a labour shortage at present. Vacancies are rapidly filled, though many farmers say they cannot select applicants, and quality may not be as high as it would be otherwise. Though not generally realised among local residents, however, there is little doubt that any further decline in population would result in a labour shortage detrimental to the present farming standards.

The size of farms and fixed equipment in the form of buildings vary so widely that it is difficult to generalise. In Humbie, apart from smallholdings, they range from 123 to 916 acres, an average of eight men are employed on each, and steadings and houses are substantial. In Westruther there are six small farms of 50-200 acres, ten of 200-400, and four over 400. An average of four men are employed on each, and steadings are correspondingly smaller. In Broughton the dairy farms are small, less than 100 acres of 'inbye,' but the other farms tend to be very large, though with limited 'inbye.' Two men are usually employed on the dairy farms. The steadings usually date from the first half of the nineteenth century and are for the most part well maintained. About 25 per cent. are wired for electricity and virtually all have a good water supply. From these three parishes alone, it is impossible to decide either way whether the farms of owner-occupiers are in better condition than those of tenants, but a good case can be made out for the former being the better method of land holding.

Apart from agriculture, the only other economic activity is that of 'services,' and even these are mostly provided from neighbouring towns. Retail distribution, for example, is done almost entirely by vans working from outside, as is transport, both goods and passenger. There is a post-office in each parish, but the only two shops and two garages are in Broughton, the centre of a county district. The seriousness of the situation has been increased in two ways: the virtual extinction of rural crafts and the general collapse of the old balanced rural economy in the face of factory production, and secondly the decline of the country estate which formerly employed large staffs. Thus instead of the formidable list of craftsmen—smiths, carpenters, tailors, weavers and millers, etc.—in the Statistical Accounts, the blacksmith and, in Broughton, the garages and an agricultural engineer are the only craftsmen. At Keith Marischal in Humbie, where formerly a staff of twenty were kept, this has been reduced to four.

Although industries and services ancillary to agriculture in particular and rural life in general are ever widening in scope, they are increasingly centralised in the larger towns. Though a moderately healthy agriculture has been re-established in Britain, in many districts a healthy, balanced rural economy has by no means followed. These two are far from being identical, a fact too often overlooked.

Difficulties in establishing alternative industry are however manifold. Transport is inadequate, and with its present high cost, distance from market is no mean factor. There is no reserve of traditional craft skills such as exists in rural areas of the Swiss Foreland or Hercynian Germany. Nor, indeed, in the present situation is there an immediate prospect of an adequate labour force.

None of the parishes is on a main route and, in view of the limited local traffic potential, transport is by no means lavish, and criticism is more vocal on this matter than any other affecting the area. Humbie is connected to Edinburgh by four 'buses daily [10] with a late one on Wednesdays and Saturdays, and to Haddington and Tranent at week-ends. It is possible to commute to Dalkeith and Edinburgh, and some sixteen people, mostly young women, do so. Westruther is served by a 'bus service operating between Edinburgh and Berwick via Greenlaw at week-ends only. Broughton has the most frequent, six services on the Peebles-Glasgow route and four services to Edinburgh. Even so, recent transport history in this case illustrates admirably the real danger of increasing centralisation, both of administration and services, in large urban centres. So far there has been but sporadic realisation by these authorities that rigid uniformity of regulation and methods well adapted to urban conditions or to those of closely settled rural areas are not necessarily so suited to areas of sparse rural population.

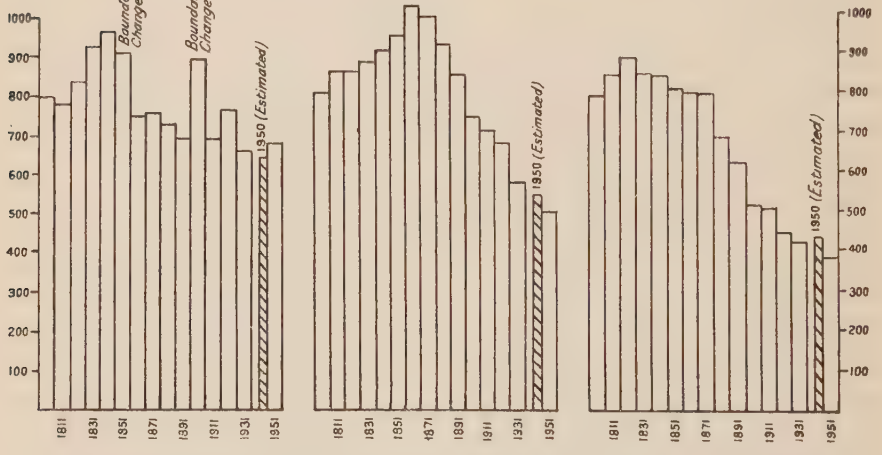
Broughton is on the branch railway from Symington to Peebles. In these years after the war rail fares were increased to such an extent that passengers were discouraged from using the trains, and on the pretext that they had " abandoned " them, trains were withdrawn on June 5th, 1950. The railway made no attempt to introduce working economies, in spite of the many successful measures adopted elsewhere, and the withdrawal of trains has meant a real loss both through the reduction in services available, their ability to convey heavy baggage and their greater reliability in bad weather.

In spite of assurances to local residents that alternative facilities would be provided to replace the trains, these were not forthcoming. After strenuous agitation both locally and in the national press, Central S.M.T. agreed to alter the times of some of their 'buses, but not to increase the number of services to make up for the loss of the trains.

The settlement pattern follows that of SE Scotland generally, with the farm steading as unit. Humbie lacks any kind of nucleus, and apart from farm houses and cottages, manse and schoolhouse, there are only some dozen dwellings. No houses have been built since 1939 and few in the inter-war years. In Westruther six council houses have been built since the war. On the other hand, there are few ruined or uninhabitable houses. In contrast, 38 per cent. of the dwellings in

Broughton are in the central nucleus on the Moffat road. It has been growing at the expense of the remainder of the parish and probably of the whole County District. Eight council houses were erected before 1939, twelve since 1945 and another eight are to be erected shortly. This is in line with the present policy of building council houses either in groups or near existing groups for reasons of economy. The disadvantage is that the isolation of farm houses is increased and in a district of stock farming may have serious repercussions. It also means that workers have long distances to cycle to and from work. The remoter valleys of Broughton have suffered severely from depopulation. In Kilbucho there are twelve abandoned dwellings traceable, forty inhabited dwellings and five empty but habitable. In Glenholm there are several abandoned sites and eleven inhabited ones.

In all parishes the dwellings are, with few exceptions, well main-



Population changes in the Parishes of Broughton (Peebles-shire), Humbie (East Lothian), and Westruther (Berwickshire), 1801-1951.

tained, with water and internal sanitation, while about 25 per cent. have electricity. In general, housing is good and not excessively short by present standards. The great drawback is the lack of accommodation apart from the tied cottage. It is a great misfortune, in view of its serious social and economic implications, that the question of tied cottages has become entangled in political prejudice.

On the one hand, in an area where villages are very scattered it is advantageous to have cottages near the farms. In SE Scotland there is generally no rent, while council house rents, though subsidised, are nevertheless high in proportion to wages. In East Lothian particularly, many cottages are of a high standard. On the other hand, there is no guarantee of this, and in parts of Berwickshire they certainly are not. More important is the resultant lack of diversity in the community. In addition, retired workers are forced to leave a community of which they are often valuable members.

Population figures for the parishes are given in the table :

	Humbie	Broughton	Westruther
Maximum Population . . .	997	929	870
Population, 1950 (Registrar-General's Estimate)	530	623	430
Ratio persons/superficial area . .	1 : 16·5	1 : 31·9	1 : 33·7
Ratio persons/cultivated area . .	1 : 12·2	1 : 7·7	1 : 15·5

The parishes thus are sparsely populated, and have suffered severely from depopulation. The figures for Broughton reflect not only the more barren nature of the terrain, but also that a greater proportion of people are not directly dependent on agriculture, there being more engaged in ' services ' and also a number of retired people. The density per acre in Westruther is similar to that of Broughton but that per cultivated acre to Humbie, reflecting both the great extent of rough grazing and the purely agricultural population.

The population trends are similar in each case, save that Broughton is complicated by various boundary changes. Since 1801, the population at first gradually increased to a maximum in 1821 for Westruther, in 1841 for Broughton, and in 1861 for Humbie. Thereafter a rapid decline set in lasting until 1921, after which it slackened, and since 1939 has virtually ceased. In some parishes there has been a very slight and probably insignificant increase. It is worthy of note that the decline had set in before the great agricultural depression which lasted from 1875 to 1939. No details of the composition of the population exists, but it must be older and less fertile than that of Scotland as a whole and, short of immigration, will almost certainly fall still further. In this connection it is noteworthy that most recent incomers have been Europeans who have settled as farm workers.

It is not the province of a geographer to dwell on purely social conditions, but it must be pointed out that the main problem is the social gulf existing between farmer and farm worker, while there are few persons not engaged in agriculture to bridge the gap. There is therefore no sound basis for the growth of a strong sense of community. In each parish is an Established Church and a primary school, while provision is made for secondary modern education at Broughton. Here, valuable work is being done in providing a rural bias and such subjects as horticulture and domestic science are regarded as important. There is also a village hall in each parish, but these are all, in varying degrees, inadequate. Westruther is fortunate in possessing an additional social centre in the shape of an attractive and spotlessly maintained ' inn,' which provides a valuable social focus that is the very antithesis of the Scottish ' drinking den.'

To sum up, these three marginal parishes display population trends common to many ' regions of difficulty.' In all three agriculture is the sole economic activity. The farming has shared in the national recovery and is now of a high standard, there being no question of its continuing to ' go back.' There is, however, still much room for improvement in the shape of re-seeding rough pasture, draining, fencing and, above all, the planting of shelter-belts. It must be remembered that any future recession will, by definition, affect these marginal areas early and fully.

But while the farming is in the main healthy, this does not mean that the rural economy is. In fact, the principal cause of rural depopulation would appear to be the excessive dependence on agriculture. Lack of alternative employment bears heavily all round but particularly on women. The provision of alternatives is, however, fraught with difficulties. Adequate transport facilities are a great need, and the indirect subsidies, which seem to be the only way to hold the existing population to these remoter areas, should take the form of the provision of transport, electricity, water and other services, which townsmen take for granted. Housing as a cause of depopulation is probably due more to the complete dependence on the tied cottage rather than to their poor amenities. For one reason or another there is a complete lack of balance in the social structure of the community as there is in its age groups. This last, in spite of a temporary slackening in the rate of depopulation, augurs ill for the near future.

Finally, it can be said that many problems are inherent in the low population density, which gives rise to the thought that there must be a critical density above which population will maintain itself and below which depopulation is inevitable unless special remedial measures are taken. These measures are beyond the powers of single counties and the problems are not local but national.

[1] *The World To-day*, 1949, 5 : 521-527. A Federal Problem in Switzerland.

[2] e.g. MEARS, Sir F. Regional Plan for Central and S.E. Scotland.

[3] HUTCHINSON, B. Depopulation and Rural Life in Scotland.

[4] MEARS, Sir F. *Op. cit.*

[5] DEPARTMENT OF AGRICULTURE FOR SCOTLAND. Scotland's Marginal Farms.

[6] STAPLEDON, Sir R. G. The Land Now and To-morrow, p. 95.

[7] FINDLATER, C. General view of the Agriculture of Peebles, 1802, p. 5, records a killing frost on July 7, 1796.

[8] *Journal of the Scottish Meteorological Society*, 1892-4, p. 18.

[9] 1 Livestock unit=1 dairy cow, 2 other dairy cattle, 1 beef cow, 1·3 other beef cattle, 9 ewes, 15 other sheep, 9 pigs or 70 poultry.

[10] Winter 1949-50 Time-tables.

GEOGRAPHY AT THE BRITISH ASSOCIATION

THE 1951 meeting of the British Association at Edinburgh was an outstanding one for Geography, being the centenary of Section E. It was therefore appropriate that it should be memorable for the number of important and stimulating papers and excursions of wide interest and for the excellent attendance. The opening meeting of the Section was honoured by a visit from the President of the Association, H.R.H. The Duke of Edinburgh. Dr O. J. R. Howarth, as President of the Section, then gave his address [see pp. 145-160], and thereafter received the Diploma of Honorary Fellowship conferred by the Royal Scottish Geographical Society, from Mr John Bartholomew, M.C., J.P., President of the Society. There were two more papers on geographers

rather than geographical topics. Mr E. O. Giffard gave a thought-provoking paper on the status of the subject in his " Geography in the Service of Mankind," and Mr T. W. Freeman closed the meeting with a report on the work of the research committee on the revival of British geography in the nineteenth century, which recalled the personalities and ideas of the pioneers, not without some entertaining anecdotes.

Particularly large audiences were attracted by the joint meetings with other sections on topics of current general interest, and it was widely felt that these constitute one of the most useful activities of the British Association. In the symposium on surveys of underdeveloped areas we were joined by the geology, botany, agriculture, forestry, and economics sections. Professor L. Dudley Stamp opened with an account of the basic procedures of the World Land Use Survey [see *S.G.M.*, 67 (*2*) : 141-142]. Brigadier M. Hotine, Mr R. M. Prothero, Dr J. W. Watson, and Miss A. G. Donnithorne dealt, respectively, with surveys in the colonies as a whole, in Southern Nigeria, in Canada, and in parts of the Far East. The geological and pedological aspects were discussed by Professor T. N. George and Dr Herbert Greene, respectively. Sir Geoffrey Evans illustrated problems of tropical land settlement from his experience in the Caribbean, and Dr A. S. Thomas gave a witty account of African land-use problems in the field. Linked with this group of papers there may also be mentioned Dr C. F. Hickling's paper on colonial fisheries, the papers by Dr R. J. Harrison Church on the sea in West African development, by Dr Ronald Miller on the climate of Nigeria, and by Miss E. M. J. Campbell on land and population problems in Fiji, while Mr A. McK. Frood gave an up-to-date survey of development problems in Libya. Mr C. G. Smith discussed a population problem of another kind in Israel.

The symposium on the natural resources of Scotland, presided over by Professor A. G. Ogilvie, also attracted a lively interest. Dr A. B. Stewart showed how Scotland's agricultural production is rising slowly, fertilisers being a critical factor, while, as Dr C. E. Lucas pointed out, fisheries are being adversely affected by the inadequacy of existing international regulation. On the other hand, forestry production is rising rapidly, as Mr A. Watt demonstrated. In minerals coal remains the staple ; Mr T. H. Whitehead's paper indicated how the small and scattered character of the deposits of many other minerals limits their possible development. Rate of development of hydro-electricity depends largely on the cost of coal but, in any case, as Mr A. A. Fulton pointed out, is unlikely to catch up with demand. Mr A. C. O'Dell's paper on population summed up much that was implicit in the other papers ; he characterised the situation as on the whole a retreat from the periphery, while total man-power resources are limited by the ageing of the population and the decline in hours of labour.

There was a large group of papers concerned with aspects of historical geography. Mr J. N. L. Baker summarised the development of the subject during the last hundred years. Dr K. Walton communicated the results of researches into the effects of climate upon agricultural and population changes, particularly with reference to the great famines of the seventeenth century. Professor J. H. G. Lebon,

in his paper on the rôle of the township in the rural settlement of Scotland, demonstrated how large-scale maps could yield much information on regional variation in the settlement pattern of Scotland. A contribution to the study of the Scottish cultural landscape of the mid-eighteenth century was made by Mr A. C. O'Dell in a paper based on material from the valuable but hitherto little-used military survey of General Roy. Dr J. M. Houston contributed a paper on " The Scottish Burgh : a Study in Urban Geography," which traced the origins of the lay-out of some Scottish burghs. Urban geography was also dealt with by Mr W. Kirk in his paper on the diffusion of the city in southern Asia. Dr H. C. K. Henderson and Dr R. A. Pelham both read papers on " The Agriculture of England and Wales," in which they showed cartographic representations of conditions in certain counties, based on the 1801 crop returns.

An exception to the generally economic or historical character of the papers was that by Dr G. E. R. Deacon on " Recent Progress in Oceanography."

Local geography was dealt with in a group of papers that served as a connection with some of the excursions. Professor A. G. Ogilvie gave a lucid and succinct summary of " Edinburgh and its Region " that was of interest to native and visitor alike and helped the latter to acquaint themselves with the district. Mr H. P. White dealt with a specialised aspect in a paper on " The Transport Geography of Edinburgh," in which the connections between transport developments, suburban growth, and the journey to work were traced. Dr Catherine P. Snodgrass, in her paper on " The Evolution of the East Lothian Landscape," gave an informative and detailed regional account of that classic area of high farming.

The excursions covered a wide area of SE and Central Scotland, and showed the forethought and care that went into their planning. They were virtually fully booked and were much enjoyed. They included a tour of the city and its suburbs; a visit to Mid and East Lothian; one to Falkirk and the Devon Valley to consider the complex land utilisation problems of the area ; a tour of southern Perthshire, visiting Balquhidder, Loch Earn, and Glen Devon ; and, finally, a visit to the Biggar Gap and Peebles.

Social activities were not neglected and included a most enjoyable garden party given by the President of the Royal Scottish Geographical Society and Mrs Bartholomew at the Manor House, Inveresk ; a sectional supper on Inchcolm made a pleasant geographical variation from the more stereotyped sectional dinner, and on this occasion the weather relented in time to provide magnificent sunset effects.

C. J. R. and H. P. W.

REVIEWS OF BOOKS

EUROPE

Europe in Photographs. Commentary by STEPHEN SPENDER. 12×8½. Pp. xiii+280. 248 photogravure plates. Historical Notes. London : Thames and Hudson Ltd, 1951. 35*s*.

The English edition of *Europa : Bilder seiner Landschaft und Kultur* [see *S.G.M.*, 1948, 64 (*2*) : 99] will be warmly appreciated, not only because of the excellence of the photogravures but because of their selection so as to illustrate the unity in diversity of European culture stressed by Dr Hürlimann in the original Swiss edition, and now admirably discussed by Mr Stephen Spender. The general merit of the volume is further enhanced by brief historical notes.

It is hoped that in future English editions the German transliteration of certain place-names—Kiew and Krassnaja Ploschtschad, for instance—and also the misprint Read Square (Moscow), will be avoided. J. H. K.

A Natural History of Man in Britain, Conceived as a Study of Changing Relations between Men and Environments. By H. J. FLEURE, F.R.S. 8¾×6. Pp. xviii+349. 76 line drawings by Alison Birch. 38 colour photographs by Robert Atkinson, John Markham and others. 38 photographs in black and white. [The New Naturalist, 18.] London : William Collins, Sons and Co. Ltd, 1951. 21*s*.

The peoples of Britain have been often studied in their racial relationships. This book takes a new point of view. It sees them in their setting in a varied and even a changing environment. Call it human ecology, social anthropology, economic history or human geography, it matters little. It studies man from a new standpoint and in so doing surveys an immense amount of research over a long period of years. It is a volume that will take a lasting place in the natural history of our island, providing as it does a synthesis of the various influences on the human story. There are many matters open for discussion, but here we must content ourselves with recording our gratitude for this fascinating and authoritative work and congratulating Professor Fleure on utilising his years of retirement in writing it. The colour plates are excellent and there is a long bibliography. R. N. R. B.

The Heart of Scotland. By GEORGE BLAKE. 8½×5½. Pp. xii+116. 76 photographs. Line drawings by Brian Cook. [The British Heritage Series.] London : B. T. Batsford Ltd. Third edition, revised, 1951. 12*s* 6*d*.

Lucidly written in a witty and balanced style, which is at times forthright and even aggressive, and not the least of its recommendations, this completely new edition of Mr Blake's *The Heart of Scotland* sets out to disturb the passivity of the modern Scot for things Scottish. Its theme is the Scottish *ethos* to-day.

Scotland is divided into Highlands, Lowlands, and the Industrial Belt—but more fundamentally between the 'Celtic' West of Scotland where the *furor caledoniensis* predominates, and the 'Mercian' East of Scotland. In developing the thesis, however, the author seems to be confused as to the underlying cause of this dichotomy—whether it is race or climate. 'Mercian' is a peculiar adjective to apply even to the Lothians. Emphasising the importance of the influx of Highlanders and Irish to the lower ward of Lanarkshire in this connection, the author scorns the romantic approach to Scottish history, and begins and ends his analysis with the effects of the Industrial Revolution. These two aspects recur as the four big cities, the kirk, the fireside clime, and sport are reviewed in successive chapters. At times his viewpoint seems to be about 1980, looking at 1950 from the subtle distance of a generation, an attribute of lasting success for the book.

The many factually interesting and stylistically pleasing pen-sketches of small places of unusual choice : Obbe—once Leverburgh—in Harris, Dumbarton, Elgin, and Dennyloanhead, to mention but a few, are combined with a remarkable series of photographs. Mr Blake's book is undoubtedly a noble volume to represent Scotland in a series preponderantly devoted to England. A. G. M.

Topography of Roman Scotland North of the Antonine Wall. By O. G. S. Crawford. 10×7½. Pp. xii+162. 32 figs. 21 plates. Folding plan. End-paper map. Cambridge : University Press, 1949. 25*s*.

Mr Crawford, as Archaeological Officer to the Ordnance Survey, has gained a topographical knowledge of Great Britain which is the envy of all of us who are interested in the location of ancient settlements and roads. In the Rhind Lectures in Edinburgh in 1943, Mr Crawford spoke of his researches on Roman Scotland north of the Clyde-Forth line, and this book is a little-altered version of these discussions. The volume is very readable, well illustrated and beautifully printed. It is a little misleading, however, to use the title *Roman Scotland* on the outer cover, and then to cut down the content so drastically with the sub-title within.

The intention has been to write an " open air book " and we are, in fact, given an account of field observations over a long period of years. After a preliminary chapter on the nature of the evidence of Roman camps and roads, the author sets out from Camelon and follows the route of the legions to what is presumed to be the northern limit of penetration, in Buchan. Incidentally, the book makes yet another attempt to locate the site of Agricola's Battle of Mons Graupius—but with what a difference when relying on the large volume of research which has accumulated since the days of Scott's *Antiquary*. The description is very much a personal record of discovery, confirmation—and disappointment ; it is discursive, and, by the nature of things, perhaps, a trifle too much of a diary.

Yet it is a stimulating book, and has served its purpose well if it makes others wish to go into the fields and on to the moors to look for the things to be seen with the eyes of the trained observer. H. F.

Scottish Border Country. By F. R. Banks. 8½×5½. Pp. viii+152. 83 illustrations. 2 maps. [The Face of Britain.] London : B. T. Batsford Ltd, 1951. 12*s* 6*d*.

The author has extended the term ' Border Country ' to include not only the counties on the Scottish side of the Border but also those parts of Northumberland and Cumberland north of a line from Carlisle to Newcastle. The first chapter deals with the historical rôle of the Border during the centuries of invasion and counter-invasion before the Union of the Crowns. During this period hardly a house escaped attention from one side or the other, and the whole area is strewn with relics of those unhappy days. The remaining chapters deal at some length with the different sub-regions, describing the scenery, architecture and historical sites. Two of the best chapters are those on the Cheviot Hills and the Roman Wall.

The superb photographs and the author's interesting and well written text make up what is one of the most attractive books on the Border Country which has yet appeared. R. B. S.

Geology and Scenery in England and Wales. By A. E. Trueman, D.Sc., F.R.S., F.G.S. 7×4¼. Pp. 349. 95 figs. [Pelican Books, A 185.] Harmondsworth : Penguin Books Ltd, 1949. 2*s* 6*d*.

This new edition of Professor Trueman's *The Scenery of England and Wales* [see *S.G.M.*, 54 (*3*) : 170] will be welcomed by the increasing number of those who take their pleasure in the country and seek to see beneath the scenic beauty of their surroundings the underlying causes. Clear descriptive writing is re-inforced by equally clear line drawings. It is useful as a sound guide which can be easily slipped in the pocket. R. M. C.

Explorer's England. By Martin Thornhill. 8½×5½. Pp. 184. 33 illustrations. List of National Trust properties in England. London : Skeffington and Son Ltd, n.d. 12*s* 6*d*.

The author has gathered together an interesting miscellany of the English countryside, odd place-names, old traditions, quaint ceremonies, inns, churches, and scenic beauties. The style is unfortunately a trifle encyclopaedic and disconnected for easy reading, but it contains much of interest. The photographs illustrating the volume are excellent. H. P. W.

The Inland Waterways of England. By L. T. C. Rolt. 9½×6. Pp. 221. Illustrated. Sketch map. London : George Allen and Unwin Ltd, 1950. 21*s.*

The demand that the Industrial Revolution made on transport in the eighteenth century was met first by canals. They amplified and took the place of riverways which proved inadequate, especially in the more hilly parts of northern England, where transport was most needed. The railways in their turn, rather more than a century ago, started to displace canals, especially when these came under railway ownership. Now there are only a few canals that regularly carry freight. Many are entirely derelict. Mr Rolt has written a welcome history and descriptive account of the canals of England—not Scotland—and the men who work them. There are not many books on the subject, and of the few recent ones this is the fullest and most readable. The economic side is least stressed, but no aspect is entirely omitted. There are many excellent photographs and a large, though incomplete map, which, by the way, is fixed to the book in an awkward manner. A frontispiece gives the gay colour of the canal barge. R. N. R. B.

Caves and Caverns of Peakland. By Crichton Porteous. 7¼×5. Pp. 104. 8 illustrations. Derby : The Come-to-Derbyshire Association (Derbyshire Countryside Ltd), 1950. 2*s* 6*d.*

Mr Porteous has given us a little book of great interest in which he deals individually with the caves in the Carboniferous Limestone of the Peak District, the lesser known ones as well as the more famous. In a simple and lucid style he describes the natural features and points of geological interest in the caves, and adds something of the history of their exploitation by miners and their exploration by spelaeologists. It is more than a guide-book and makes entertaining reading for those not contemplating a visit to Derbyshire. There are some good photographic illustrations, but a key map and a few plans would add the finishing touches to an excellent work. H. P. W.

The Forest of Dean. By Brian Waters. 8½×5½. Pp. ix+182. 16 illustrations. Map. London : J. M. Dent and Sons Ltd, 1951. 15*s.*

This is a charming book about a little-known part of Britain with a manner of life peculiarly its own. It should appeal to a wide circle of readers. No corner of England has clung more tenaciously to its lore and customs than this corner of Gloucestershire. Dean remains a forest of trees, but the trees which provided food and shelter for its inhabitants died millions of years ago. The ' free miners ' of Dean are now the only private producers of coal in our island. C. R. V. G.

Wiltshire. By Edith Olivier. 8½×5½. Pp. ix+356. 49 illustrations. Sketch map. [The County Books.] London : Robert Hale Ltd, 1951. 15*s.*

The late Miss Olivier's book contains much of interest about Wiltshire, famous Wiltshire men and women, and Wiltshire folk in general, but it is rather fragmentary and disappointing. " Much about Wiltshire " would perhaps be a happier title. The reviewer is delighted to find his own unimportant community honoured with no less than seven pages, but its omission from the map draws attention to the latter's inadequacy. Unfortunately, too, he cannot find a single trace of the windmill stated to be still standing in the yard of one of his neighbours, and gathers that it was demolished about the 1880's. There are other mistakes. C. R. V. G.

Devonshire. By D. St Leger-Gordon. 8½×5½. Pp. x+369. 49 illustrations. Sketch map. [The County Books.] London : Robert Hale Ltd, 1950. 15*s.*

Devonshire has so many attractions—varied scenery, interesting history, intimate association with the sea—that it would probably be difficult to write a dull book about the county. Nevertheless, Mr St Leger-Gordon must be congratulated on adding to his wide and detailed knowledge of Devon and Devonshire folk a considerable amount of research, presented in a lively and entertaining style. The result is an exceedingly interesting book, which should be read by everyone concerned with, or intending to visit, the West Country. The photographic illustrations are, as we have come to expect in this series, very fine. R. B. S.

Cornish Harbours. By ROLAND RODDIS. $8\frac{1}{2}\times5\frac{1}{2}$. Pp. x+153. 23 photogravures. Sketch map. London : Christopher Johnson Publishers Ltd, 1951. 10*s* 6*d*.

The illustrations of this book are excellent, and so is the text. Lovers of Cornwall will be grateful to Mr Roddis for producing *Cornish Harbours*. A non-Cornishman, he explains in the introduction that he offers his book in praise of Cornwall. His praise is very high indeed. C. R. V. G.

The Dreaming Shore. By OLIVIA MANNING. $8\frac{3}{8}\times5\frac{5}{8}$. Pp. 202. 25 illustrations. End-paper sketch maps. London : Evans Brothers Ltd, 1950. 15*s*.

This must surely be one of the most attractive books published about the Emerald Isle. It will help the foreign tourist to understand and appreciate the beauty, romance, and picturesqueness of the Irish scene. Poetry, history, local legend, humour, and geography—even some geology—are all pleasantly mingled into a comprehensive volume that makes excellent reading. The illustrations are superb. So are the descriptions of the bathrooms in some of the places where the author stayed overnight. The student of ecclesiastical architecture will enjoy reading this companionable book. Somehow Miss Olivia Manning managed to get around, even to outlandish spots. She travelled the land from Cork to the north of Donegal by bus, and used her eyes all the way. This volume of her observations is the happy result. R. S. P.-K.

The Charm of the Channel Islands. By R. M. LOCKLEY. $8\frac{1}{2}\times5\frac{1}{2}$. Pp. 136. 17 illustrations. End-paper sketch maps. [Windows on the World.] London : Evans Brothers Ltd, 1950. 9*s* 6*d*.

Mr Lockley sets out to provide a general picture of the Channel Islands, rather than an exhaustive guide. He describes all the islands and reefs in the group, and there are short chapters on the natural life of the area, and discussions of the contemporary economy of the larger islands. Some glimpses into the history of the islands are followed by a chapter on the recent German occupation.

The author chooses his material better than he arranges it. Historical episodes are scattered, and his interest leaps from one island to another in a way which leaves a confusing impression in the minds of readers not closely acquainted with them. Nevertheless, the scientific interests of Mr Lockley, allied to a capacity for vivid description of natural features, should succeed in awakening the intelligent interest of his readers. The photographic illustrations are good. B. F.

The Island of Jersey Today. By R. C. F. MAUGHAM, C.B.E., F.R.G.S., F.Z.S. $8\frac{1}{2}\times5\frac{1}{2}$. Pp. 199. 9 illustrations. London : W. H. Allen and Co. Ltd. Revised edition, 1950. 9*s* 6*d*.

Mr Maugham gives some good, short descriptions of typical Jersey landscapes, but his remarks on the natural history and agriculture of the island are somewhat naïve. The bulk of the book consists of accounts of historical buildings and of the people who have lived in them. There is also a full description of the present-day laws and government of the island, with much advice for intending residents.

The illustrations are satisfactory, but there is no map. B. F.

Paris. Edited by ALAN HOUGHTON BRODRICK. $8\times5\frac{1}{2}$. Pp. xxii+478. 190 illustrations. 20 plans. [The People's France, Vol. 3.] London : Hodder and Stoughton Ltd, 1950. 20*s*.

The descriptions in this volume of *The People's France* series are limited to the city of Paris ; Versailles, etc., are to be included in a future volume. The Arrondissements are dealt with in numerical order, and the treatment is exhaustive. There is an index of streets and buildings, but an extension of the index to cover individuals mentioned in the text would be helpful. To the ordinary visitor as well as to the explorer of unfrequented side streets where much history lies hidden, this encyclopaedic book is indispensable for a proper understanding of the city's history and for an appreciation of its many aspects and places of interest. H. S.

Subterranean Climbers. By Pierre Chevalier. 8½×5½. Pp. 223. 9 illustrations. 23 photographs. 10 sketch maps. London : Faber and Faber Ltd, 1951. 16*s*.

This is an account of the exploration of the network of shafts, galleries, and labyrinths in the Dent de Crolles in the south-east of France. The exploration was undertaken by Pierre Chevalier and his friends, and victory was only achieved after twelve years, which included a period of the Occupation, when resources were meagre and food scarce. In spite of all these difficulties the author and his friends persisted, and one realises to a certain extent at least the skill displayed, the exhausting labour, and the difficulties overcome. The network of tunnels, shafts, etc., as finally explored was nearly two miles long with a descent of 2,000 feet : a truly remarkable performance. The book contains many illustrations and is most graphically written.

A. H.

Background to Sweden. By Terence Heywood. 8½×5½. Pp. 332. 69 illustrations. London : Constable and Co. Ltd, 1951. 25*s*.

Enjoyment of this book depends on one's attitude to the Specialist. An Oxford graduate with a wide knowledge of Sweden, the author writes mainly about those things which interest him and even quotes passages from his diary. Consequently the tourist planning a Swedish trip receives little direct advice. Yet Mr Heywood tackles his topic—be it the naval history of the Baltic, or the importance to Sweden of her forests, the illustrious alumni of Uppsala University, or the technical difficulties of skiing in the Fells—with such enthusiasm that we are given an insight into the increasing popularity of Sweden among British visitors. Its satisfactory photography makes Mr Heywood's work doubly welcome.

B. O'S.

Land of Lakes : Memories Keep Me Company. By Henry McGrady Bell. 8½×5½. Pp. x+246. 33 illustrations. End-paper map. London : Robert Hale Ltd, 1950. 15*s*.

Scotland's associations with Finland are long and strong. Any Finnish telephone directory will testify to descendants of Scottish soldiery who buttressed Finland politically, merchants who strengthened Finland commercially, technicians who established Finland economically. Henry Bell, a native of Dundee who declares himself " half a Finn," is of their kin. His book tells how he furthered the association commercially, through trade in timber, paper, and pulp—" The book might well have been called ' Pulp and Circumstance ' " the author once declared ; diplomatically, through shouldering the responsibilities of Britain's first political representation to independent Finland and by functioning as Finnish Consul-General in London. *Land of Lakes*, an autobiographical study of half a century of Finnish contact, is concerned more with personalities than places. Small wonder that this man of action should find himself linked with the leaders—Mannerheim, Paasikivi, von Julin, Sibelius—of this land of action. *Land of Lakes* lays no claim to being a geographer's book ; but it is one of those memoirs which are absolutely indispensable to the historian who would seek to piece together the mosaic of this northern land.

W. R. M.

Munich and its Environs with Garmisch-Partenkirchen and Oberammergau. Handbook for Travellers. By Karl Baedeker. 6¼×4¼. Pp. 146. 2 plans. Map. London : George Allen and Unwin Ltd, 1950. 7*s* 6*d*.

In size and shape this is the ideal guide-book. Though slender, it contains an astonishing amount of material, due to the use of a small but clear type, with a good deal of information in smaller but easily readable print. For those who knew Munich before the recent war much of the book is sad reading, for Munich suffered in buildings and art treasures. The guide-book, while recounting past glories, deals faithfully with those—a surprising number—which remain, and also tells of the reconstruction in progress. The references to the Nazi régime, of which Munich was the headquarters, are objective and informative. Even the Nazi régime at its height never extinguished the characteristic kindliness of the Bavarians in the years before the war. The beautiful and historic surroundings of Munich are adequately dealt with. The practical information as to hotels, transport, and cuisine is well done.

W. B.

Die Glan bei Salzburg. Ihre Landschaft, die Regulierung und deren kulturgeographische Auswirkungen. By KARL A. SINNHUBER. $9\frac{1}{2}\times6\frac{3}{4}$. Pp. 45. Maps, diagrams, and illustrations. Salzburg: Amt der Landesregierung, 1949.

A very competent account of the canalisation of a mountain torrent with a fall of 600 feet in just over eleven miles, and a description of the landscape, fauna and flora of the district and the ways in which these have been affected by the scheme. This is not yet quite complete. Floods, which used to be devastating, are things of the past and the area of cultivation has been greatly extended. The Glan is tributary to the Salzach, joining it below Salzburg.

Two small points of interest: (1) The name *Glan* is of Celtic origin. In German it might be Lauterbach=Clear Brook, *cf.* Gaelic and Welsh *glan.* (2) In 1737 Father Bernard Stuart, a Scots professor of Mathematics in the University of Salzburg and afterwards Abbot of Ratisbon, received a concession to cut peat on the moor in which the Glan finds—in part at least—its source.

The book includes many maps, profiles and sketches, and exceptionally good photographs. R. T. C.

Walking in the Alps. By J. HUBERT WALKER. $9\times6\frac{1}{4}$. Pp. xi+274. 33 plates. Diagram. 12 sketch maps. Edinburgh and London: Oliver and Boyd Ltd, 1951. 25*s.*

This admits to being a guide-book but a guide-book written from the personal experience of the author. He dislikes crowded towns and prefers touring to working from centres. It is written for walkers and climbers who do not aspire to the highest summits, and most of the routes described traverse the flanks of the main mountain groups. The book will appeal to many people who either have no wish to attempt difficult climbs or have not got the knowledge to do so. It will also appeal to many elderly climbers who have to content themselves with lower tops and passes.

The author deals with eight groups. There are those well known to British mountaineers such as the Pennine, Bernine and Ötztal Alps, but of even more interest and use are his chapters dealing with the lesser known groups which include the Lepontine, Bregaglia, Adamello-Presanella, Ortler and Stubai Alps. At the end of the chapter dealing with each group there is a list of the inns, smaller hotels, and huts in the group. The diagrams are adequate and the illustrations, from photographs by the author, are without exception good.

This should be a valuable addition to Alpine literature. A. H.

Swiss Enchantment. By MONK GIBBON. $8\frac{1}{2}\times5\frac{1}{2}$. Pp. 171. 17 illustrations. End-paper maps. [Windows on the World.] London: Evans Brothers Ltd, 1950. 10*s* 6*d.*

This book is full of useful information of a practical nature, but it is also much more than a mere guide to Switzerland. With the pen of a poet the author paints for us charming word-pictures of the unrivalled scenery of Alpine peaks and meadows; he visits the towns and extracts the maximum of unusual information about their history and inhabitants. His enthusiasm for Switzerland and the Swiss people is infectious, and anyone reading this book, either as an armchair traveller or whilst touring the country, will be enthralled as he is led on from page to page by a guide who knows the country from end to end. A number of beautiful illustrations add to its charm and value. I. W. H.

By Italian Shores—Genoa to Naples. By ERIC WHELPTON. $8\frac{1}{2}\times5\frac{1}{2}$. Pp. 185. 17 illustrations. End-paper sketch maps. [Windows on the World.] London: Evans Brothers Ltd, 1950. 9*s* 6*d.*

One of the *Windows on the World* series, this volume covers the Italian coast from Genoa to Naples, with a brief description of the approach to the coast via the Mont Cenis line and Turin. The islands off the coast are included, and beyond Naples the Sorrento peninsula and Capri are described. The author has an intimate knowledge of the places, which he passes on to his readers. Near the foot of page 36 the surname of Marie Bashkirtseff has been wrongly given as Bartschiekeff.

A book to recall pleasant journeyings on this long stretch of coast. H. S.

ASIA

Jungle Journey. By Ethel Mannin. 8½×5½. 41 illustrations. End-paper maps. London : Jarrolds Publishers Ltd, 1950. 16*s*.

Although this book was never meant to be anything more than a collection of the impressions obtained during a comparatively brief tour, nevertheless it gives a glimpse of some aspects of the old and new India and Pakistan. The journey to India is treated sensibly, and the usual pre-travel fussing is amusingly discussed. However, some of the topics are laboured : for instance, some thirty pages are spent in consideration of tigers—not only the experiences of the author and her daughter while trying to find one, but also detailed accounts of tiger theories held by several other authors. The book would be of interest to those about to travel to India and Pakistan, but it is of less interest from the geographical viewpoint. J. M. S. B.

Memoirs of a Mountaineer : Helvellyn to Himalaya ; Lhasa : The Holy City. By F. Spencer Chapman, D.S.O. 8×5. Pp. 446. 47 illustrations. Map. London : Chatto and Windus, 1951. 16*s*.

As *Lhasa : The Holy City*, first published in 1938 [see *S.G.M.*, 55 (*2*) : 119-120], and *Helvellyn to Himalaya*, issued in 1940 [*S.G.M.*, 57 (*1*) : 43], have been out of print for several years, publication of this composite volume is most acceptable. The charm and interest of these accounts of high endeavour have not been dimmed by the passage of time, and this revised edition is sure to enlarge an already wide circle of readers. I. E. C.

Outer Mongolia and Its International Position. By Gerard M. Friters. Edited by Eleanor Lattimore. Introduction by Owen Lattimore. 8½×5½. Pp. xlvii+358. 2 sketch maps. End-paper map. [International Secretariat, Institute of Pacific Relations.] London : George Allen and Unwin Ltd, 1951. 25*s*.

This is a book for the student of modern history rather than for the ethnographer or folklorist. It is a valiant and painstaking attempt to unravel the tortuous maze of plot and counter-plot constituting the story of that vast but little-known region since the middle of the nineteenth century. But even though the author has consulted hitherto untapped Russian archives, the Iron Curtain has scarcely been penetrated : there is still much we should like to know. One thing is clear, namely, that China missed a golden opportunity of gaining the allegiance and friendship of the Mongols at the end of the first world war, when Russia was in the throes of revolution. Before then Russia had not exploited the country. On the other hand, the Mongols looked askance at the Chinese agriculturists coming to Mongolia, and they feared that their future lot would be similar to that of the Red Indians. Since 1920 Russia has become stronger, and now the 600,000 square miles of Outer Mongolia are another of the Communist buffer states.

Owen Lattimore has written an excellent forty-six page introduction ; and maps, comprehensive appendices and an index lend assistance to the somewhat heavy reading of this authoritative book. W. Ky.

Confessions of a China Hand. By Ronald Farquharson. 8¾×5¾. Pp. 224. London : Hodder and Stoughton Ltd, 1950. 12*s* 6*d*.

By learning to speak Mandarin and penetrating into unfamiliar parts of China and Manchuria, as well as along the Korean border, the author got to know a great deal about the Chinese and their characteristics. A good mixer, possessing keen powers of observation, and wielding a fluent pen, he gives a series of vivid and sympathetic pictures of various types : the business man, the war lord, the scholar, the house boy, the coolie, etc. The whole volume has the tang of North China ; and its perusal is certain to produce nostalgic yearnings among those Europeans who resided there before the Reds drove them away.

When the author is engrossed in his story the style is excellent and the reading smooth and delightful. Unfortunately, every now and then the even tenor of the narrative is broken by an adolescent-like attempt to write flamboyantly. Drastic pruning, and in some instances complete excision, of these tortuous passages would improve this otherwise excellent book. W. K.

AFRICA

Many Happy Days I've Squandered. By ARTHUR LOVERIDGE. 8½×5½. Pp. 243. Illustrations. London: Robert Hale Ltd, 1950. 12*s* 6*d*.

This is an entertaining book, one yarn succeeding another, while the naturalist tells us his story from childhood till the present day. He was, literally, a 'born' naturalist, and it says much for the understanding and toleration of his parents that he was permitted to indulge his passion so freely and at so early an age. Later on he seems to have received the same consideration from his comrades and commanding officers when he served with the East African Mounted Rifles.

Loveridge reached East Africa early in 1914, having been appointed as curator of the East Africa and Uganda Natural History Society's museum at Nairobi. This museum was then in a chaotic condition, and the author had just begun clearing up the mess and replanning the place when war broke out, and for the next four years his natural history studies were pursued while campaigning. How he managed to collect and to bring home his collections while busy in the war is a story in itself and well worth reading.

Throughout the book there are many facts recorded, which, though perhaps not new to experts, are certainly new to the ordinary reader. Such, for example, are the details about the black spitting cobra, the pink cobra, the way the palm swift glues its eggs into its nest, the information that the venom-carrying teeth of the *boomslang* snake are at the back of the jaw, and the terrible activities of driver ants. But these are only a few of the many stories with which this most readable book is packed. The author's sub-title for his book, given on the dust-cover, is "Adventures of a Naturalist whose life has been 'one long holiday.'" It is a happy title for a happy book. W. B.

The Year Book and Guide to Southern Africa. Edited by A. GORDON-BROWN, F.R.G.S., for the Union-Castle Mail Steamship Company Ltd. 7¼×4¾. Pp. lx+770+48 (atlas)+163 (advertisements). London: Robert Hale Ltd, 1951 edition. 8*s* 6*d*.

The demand for complete sets of the *South and East African Year Book and Guide* (1893-1949) is an indication of the value of this publication as an indispensable work of reference. Divided into two volumes in 1950, the Year Book dealing with Southern Africa includes much detailed information about the Union of South Africa, Northern and Southern Rhodesia, South West Africa, Bechuanaland, Basutoland, Angola, etc. As is the case every year, the work has been carefully revised, and in the present edition thirteen route maps, accompanied by distance tables, have been added. Other excellent features are the town plans in the text, and the atlas in colour, by Messrs John Bartholomew and Sons, also historical notes, descriptions of all the principal towns, notes on the Kruger National Park and the Victoria Falls, and valuable information on mineral resources and the diamond industry.

The companion volume, on East Africa, has been noticed in the last issue of *The S.G.M.* (p. 135). I. E. C.

AMERICA

Canada, a Short History. By G. S. GRAHAM. 7¼×4¾. Pp. 187. 5 maps. London: Hutchinson's University Library, 1950. 7*s* 6*d*.

This is a concise and readable account of Canada's growth to nationhood, and her long and successful struggle for national independence against her powerful neighbour to the south. Geography was against Canada from the beginning—her vast size, poor communications, harsh winter climate, and racial diversity made the task of consolidation difficult enough without the continual threat of absorption by the United States. The book should be read by every citizen who wishes to understand Canada's present rôle in world affairs. As befits the subject, a useful reference list is included for those who wish to pursue the study further. R. B. S.

The British West Indies. By W. L. Burn, M.A., F.R.HIST.S. $7\frac{1}{4}\times4\frac{3}{4}$. Pp. 196. [British Empire History.] London : Hutchinson's University Library, 1951. 7*s* 6*d*.

In compressing into 196 pages the history of the British West Indies and showing how they were affected by the changing colonial policy and social concepts of Britain, Professor Burn has, of necessity, neglected much of the colour and fascination of these islands.

His book is an excellent synopsis of facts with correct but brief deductions of their impact on the social order : but it would be difficult for a student of a particular island to abstract a correct overall picture of that island's history. It is significant that there are no chapter headings, nor indeed are headings possible.

J. F. W. H.

Haunts of High Adventure : Sidelights and Cameos on Travels in Venezuela, Panama, Mexico, Cuba, and the West Indies. By Colonel P. T. Etherton. 9×6. Pp. 200. 39 illustrations. London : John Long Ltd, n.d. [1950.] 18*s*.

This description of a visit to Mexico, Central America, Venezuela and the West Indies is written after the fashion popularised by Mr Gunther, except that accounts of interviews with local personalities are lacking. The omission will probably make *Haunts of High Adventure* more popular with the average British reader. Colonel Etherton has produced an excellent travel book, packed with information, unspoiled by trivialities, and well illustrated. C. R. V. G.

Plant Hunters in the Andes. By T. Harper Goodspeed. 9×6. Pp. xiv+429. 116 illustrations. Maps. London : Robert Hale Ltd, 1950. 21*s*.

This book is the Journal, so to speak, of the men and women members of two expeditions in 1935-6 and 1938-9 who went their different ways exploring in the Andes of Chile and Peru from the equator (Ecuador) as far south as Magallanes. They were, in the main, hunting for rare species of tobacco for the University of California Botanical Garden but found hosts of other plants in odd places and in unique associations.

The story gives incidents just as they came in the day's march and their subjects range far from plants, including animals, insects, the country, its climate, its buildings —ancient and modern—and the people both native and settled of the various areas and their customs. One has to read much between the lines at times, for the writing has a disarming naïveté which tends to disguise high endeavour and a great deal of accomplishment.

The illustrations range their subjects as does the text and could be linked with it and the index with advantage. But they do not make the grade of the text nor supplement it as they might have been chosen to do. There is one beautifully written description of ' monkey-puzzle ' country on page 376 which cries aloud for quite different pictures than the blurry scenes of cowboys in that weird forest and of one of its tree-tops (pp. 352-353). Many of the pictures which were taken in brilliant tropical light can show their full beauty only when held close to strong artificial light in this country. This applies particularly to the amazing view of the Rio Urubamba (p. 144) and the many lovely cactus flowers. One little point denies honour where the author would give just dues. The acknowledgment to Mr Bennett Greig of the British Legation, Lima, for his photograph of Peruvian Indian women, the only one in the book not taken by a member of the expeditions, is given the wrong page number ; and there are several it might be. Customs vary in different lands, yet it seems an odd one that cuts off the top of the head in a torso portrait of the best friend of the Peruvian Indian, the llama (p. 64). Nevertheless the illustrations, whose excellence is due to the " knowledge of the refinements of photographic technique " of Dr Harvey E. Stork, and the text, arranged by Dr T. Harper from his colleague's notes, combine to make a book which can be read by technologists and amateurs with equal appreciation and will fascinate them all. Anyone who seeks to improve our Lady Nicotine deserves high praise, and if at the same time our gardens benefit and our relations with other nations, even though they be just Andean peoples, are improved as well as certain sciences benefiting, the men and women concerned in the production of *Plant Hunters in the Andes* deserve our sincerest commendation. R. E. C.

The Road to Cuzco. By ENA DARGAN. Preface by Salvador de Madariaga. $8\frac{1}{2}\times5\frac{1}{2}$. Pp. 215. 35 illustrations. End-paper maps. London : Andrew Melrose Ltd, 1950. 20*s*.

During her travelling in the plateaux of Peru and Bolivia, the author has managed to penetrate a little beyond the superficial life generally viewed by tourists. The use made of Indian legends helps to link the past of pre- and post-Conquest days with the varied form of life at the present time. Possibly the most interesting section of the book describes the performance and later acquisition of the script of an old Indian play, depicting a story of the end of Inca rule.

Although landscape and economy are discussed, the book is of most interest from the point of view of the historical geographer, for it enables him to understand some of the incongruities of life in present-day High Peru. J. M. S. B.

AUSTRALIA

Brown Men and Red Sand : Journeyings in Wild Australia. By CHARLES P. MOUNTFORD, F.R.A.I., F.R.G.S. $8\frac{1}{2}\times5\frac{1}{2}$. Pp. 192. 63 illustrations. Sketch map. London : Phoenix House Ltd, 1951. 18*s*.

This is an attractive account, written for the general reader, of an expedition in Central Australia. The author is a well-known Australian ethnologist and an experienced traveller. The principal objects of his journey were to study the daily life and to collect the folk-lore of the aborigines, of whom he gives us a sympathetic and fascinating description. Mr Mountford tells us of the difficulties of native life in the Central Desert, where food and water are hard to get, and climatic conditions are severe, and gives an admiring account of the ingenious way in which the natives have adapted themselves to their hard circumstances. He found his aboriginal guides good friends, and after winning their confidence had the unusual privilege of attending some of their sacred rites and ceremonies. The desert landscape, its vegetation, and its extraordinary and awe-inspiring rock features are vividly recorded.

A map is included, showing the route taken along the Musgrave and Mann Ranges and to the north of them. A most attractive feature of the book is its wealth of excellent photographs of the country and its people. R. K.

The Murray Valley : A Geographical Reconnaissance of the Murray Valley and a New Design for its Regional Organisation. By J. MACDONALD HOLMES, PH.D. $9\frac{1}{2}\times6$. Pp. xv+280. 42 figs. 16 plates. Bibliography pp. 261-274. Sydney and London : Angus and Robertson Ltd, 1948. 30*s*.

In this interesting book the professor of geography in Sydney University traces the history of the Murray River from its first discovery by the pioneers, through the early stages of exploration of the main stream and its tributaries, and the early attempts to use it as a waterway, to its present-day possibilities for irrigation, land development and human settlement. But before these possibilities can become actualities, it is necessary to have a clear picture of the river valley, based on comprehensive physical and regional studies.

Space does not permit of discussion here of the evidence adduced and the methods employed by the author to reach his conclusions, but the reader will have no difficulty in following the geographer in his synthesis of his problem, which points the way to the legislator, administrator and settler along which success may be achieved. It is a merit of the book that human welfare is kept in the forefront. R. M. C.

POLAR REGIONS

The Antarctic Problem: An Historical and Political Study. By E. W. HUNTER CHRISTIE. Foreword by Sir Reginald Leeper. $9\frac{1}{4}\times6$. Pp. 336. 24 illustrations. 5 maps. London : George Allen and Unwin Ltd, 1951. 25*s*.

The aim of this work is to give a background to the political dispute between Great Britain and Argentina and Chile involving the Graham Land area and adjacent islands of Antarctica. Without personal knowledge of the region, as is Mr Hunter Christie's misfortune, this is not an easy task, but it has been well done.

The story of the exploration of the Graham Land area is told with balanced judgment and commendable accuracy. That part of the book can rank with Mill's *Siege of the South Pole*. The stories of Nordenskjöld, Bruce, and Filchner are particularly well told, with a true appreciation of Bruce's work in the *Scotia*. We can recall no work since that of H. R. Mill which does equal justice to Bruce. The terms Scotia Arc and Scotia Sea are correctly used as permanent memorials to one of the most thoroughly competent expeditions which have ever visited this part of the Antarctic (p. 180).

The arguments for ownership by the three states, all of whose claims overlap, are set out with commendable clearness and accuracy. No claim is very strong, but Great Britain leads in discovery, exploration, and settlement, except perhaps for Laurie Island, South Orkneys, where an Argentine observatory has functioned for 47 years. It might, however, be worth noting in this connection that when Bruce handed over this observatory in February 1904 to its first Argentine staff, and the Argentine flag was hoisted, no claim to the island was made. The leader of the Argentine party at that ceremony, which the present reviewer attended, repudiated any authority to make a claim to ownership. Mr Christie is not quite correct in his statement (p. 287) that the " station was first established with the approval and assistance of the British Government." Bruce had no assistance from the British Government.

Mr Christie rejects, for no sound reason that we can see, the institution of international control, and in stressing Great Britain's insistence on her claim to the whole of the Falkland Islands Dependencies even advocates, as a last argument, the use of force. Here an excellent book becomes nearly fantastic, and when he enlarges on the use of the islands as a naval base he apparently overlooks the dangers of hidden rocks and floating ice. But the book deserves praise and is a valuable addition to the history of Antarctica. There are a few misspelt proper names but nothing of importance. The bibliographies are useful but not exhaustive, and the sketch maps are adequate. R. N. R. B.

METEOROLOGY AND CLIMATOLOGY

New Zealand Weather and Climate. Edited by B. J. Garnier. 9½×6. Pp. 154. Illustrated. [Miscellaneous Series, No. 1.] Auckland : The New Zealand Geographical Society, 1950.

The high standard set by this book, the first of a series of " Special Publications of the N.Z. Geographical Society," augurs well for the future of the Society, which, established in 1944, already produces the *New Zealand Geographer* twice annually and contemplates the future publication of a " Research Series."

Of the five chapters of the book, three have previously appeared in print, but it is convenient and valuable to have them now presented within one cover, thus providing a comprehensive survey of the weather and climate of the country.

In the first chapter, N. G. Robertson writes of the history of weather observations in the Islands and of the development and organisation of the N.Z. Meteorological Office. I. E. M. Watts then describes the forecasting of N.Z. weather, a process rendered very difficult by the almost complete absence of information from the surrounding oceans, particularly to the west. There follows an excellent general account of the elements of the climate by the late E. Kidson. The climatic analysis is completed by two chapters written by B. J. Garnier, dealing with regional variations. In the first he is led to use Thornthwaite's classification in preference to that of Köppen for the very cogent reason that, in the particular case of New Zealand, it is more capable of indicating contrasts in the climatic character. Indeed, Köppen's classification would stamp almost the whole country as c.f.b. In the last chapter he discusses seasonal climates.

Two appendices, giving a comprehensive bibliography compiled by J. C. Dacre and climatic statistics, complete what is certain to become the standard text and reference work on the weather and climate of New Zealand.

The British reader will be somewhat surprised to come across a New Zealander writing in the Introduction of " our (i.e. his) much maligned weather." But perhaps this refers to " the exasperating habit of fronts not always behaving as they should." J. P.

BIOGRAPHY

James Gordon's Diary, 1692-1710. Edited by G. D. Henderson and H. H. Porter. 9½×7. Pp. vii+204. Aberdeen : The Third Spalding Club, 1949.

This detailed record of the daily experiences and reflections of an Episcopalian clergyman in Aberdeenshire and in Yorkshire during the two stormy decades that followed the Revolution adds greatly to our appreciation of the tense atmosphere of that critical period in our national history. James Gordon, son of the minister of the parish of Banchory-Devenick on Lower Deeside, graduated at Marischal College, and in 1686 he was licensed to preach and ordained priest by the Bishop of Aberdeen. During his residence in England he exerted an important influence on the movement in Court circles that resulted in the passage in 1712 of " Queen Anne's Act of Toleration." Ably edited, the *Diary* is a most valuable addition to our authorities for the study of the post-Revolution controversies in Scotland. G. P. I.

EDUCATIONAL

The Use of Geography. By Frank Debenham, o.b.e., m.a. 7½×5. Pp. 206. [Teach Yourself Geography.] London : The English Universities Press Ltd, 1950. 6*s*.

As author of the introductory volume to a series entitled *Teach Yourself Geography*, Professor Debenham has conceived his task as the presentation of geography as essentially a Philosophy of Place. For those whose knowledge of academic geography does not go beyond the ' capes-and-bays ' stage, and who consequently doubt very much whether it has a use, and even for those researchers who in their specialisation have lost their original broad conception, this book has a simple message, well expressed by one who obviously has a sincere faith in the usefulness of a subject which, so frequently accused of being neither art nor science, has found strength in that so-called weakness. One minor omission may be noted: surely the 1 : 25,000 O.S. map was worthy of mention in the map section ? D. M.

Visual History of Mankind. By Otto and Marie Neurath. Charts by the Isotype Institute. Honorary Editor : Lancelot Hogben. 8½×8. I. *Living in Early Times.* Pp. 49. 21 charts. II. *Living in Villages and Towns.* Pp. 49. 20 charts. III. *Living in the World.* Pp. 49. 20 charts. IV. *Notes for the Teacher.* Pp. 48. [Max Parrish Books.] London : Adprint Ltd, 1948-49. Sole Distributors : George G. Harrap and Co. Ltd. Books I-III, each 3*s*. Book IV, 3*s* 6*d*.

The aim of this set of books is to stimulate the child's interest by a visual portrayal of certain aspects of history, and the books deal particularly with man's adaptation to his environment from prehistoric times to the present day. The approach to history is geographical, and the books therefore provide a useful link between these two school subjects. They also provide an attractive introduction to the use of graphs, cartograms, and other symbols. Although intended for the primary school, there are illustrations and questions for children of every age, and perhaps especially for the eleven-to-fifteen age group. M. M.

Europe, A Regional Geography. By M. R. Shackleton. 8½×5½. Pp. xvi+525. 154 maps and illustrations. London : Longmans, Green and Co. Ltd. Fourth edition, 1950. 21*s*.

With the publication of the fourth edition of this useful university text-book (first edition 1934), the opportunity has been taken to bring it up to date and to correct one of its main defects, namely the inadequate number of maps. The additional maps, which are mostly of morphological regions and population density, and the clearer subdivision of the text into paragraphs, with the use of heavy type and italics to indicate subject matter, should make the book more useful for study and reference. The text has been revised and certain sections rewritten or expanded, especially those on Eastern Europe, which have been almost trebled in length. C. P. S.

The Study of Local Geography. By CHARLOTTE A. SIMPSON, B.SC.(OXON.). 8½×6½. Pp. viii+68. 5 maps. Ordnance Survey symbols. London : Methuen and Co. Ltd. Second edition, revised, 1950. 6*s* 6*d*.

This is quite a useful little book for those who wish to undertake serious studies in local geography with young people. It deals systematically with the main features of the countryside, and is based on a sound conception of the subject ; but it will probably be of most value to teachers in the southern half of England.

The usefulness of the maps would have been enhanced by stating their location and by naming the streams which have been traced. There are some inaccuracies regarding Map II, and certain facts suggest that the book has not been sufficiently revised since its first publication [see *S.G.M.*, 1934, 50 (*3*) : 189-190]. On the whole, however, it is a helpful text-book. G. P. B.

South America : An Introductory Survey. By E. G. ASHTON, M.A. 8×5¼. Pp. 272. 55 figs. 34 photographs. [Harrap's New Geographical Series.] London : George G. Harrap and Co. Ltd, 1950. 8*s* 6*d*.

This introductory study of South America is of sufficient breadth and depth to justify its being given a place in the library of a Leaving Certificate Class in Scottish schools. After the chapters on Build, Climate and Natural Regions, the Continent is studied on the basis of political units. In each case the influence of past history on the present-day development of the country is taken into account. The volume is well illustrated by pictures and diagrams. There is a good index. J. Y. E.

About Maps. By PETER HOOD. 7×8½. Pp. 31. Illustrations. [Puffin Picture Book 67.] Harmondsworth : Penguin Books Ltd, 1950. 2*s*.

This fascinating little book, designed for children whose map reading is to be a joy for ever and not an onerous duty imposed by examinations, covers practically the whole field of map work. Early maps, orientation, map projection, scale, plans and the weather map are spoken of in simple non-scientific words. Greatest space is rightly given to Ordnance Survey maps, with the pages on explanation of symbols, at once attractive and effective. A. C. Y.

GENERAL

A History of Exploration from the Earliest Times to the Present Day. By Brigadier-General Sir PERCY SYKES, K.C.I.E., C.B., C.M.G. 10×6. Pp. xiv+426. Illustrated. 44 maps. London : Routledge and Kegan Paul Ltd. Third edition, 1949. 30*s*.

This is a third edition, with a new appendix, of Sir Percy Sykes' fascinating *History of Exploration*, which on its first appearance in 1934 was reviewed at length in *The S.G.M.* [1934, 50 (*3*) : 179-181]. It is therefore sufficient to add that this new edition of an enthralling story is made all the more valuable by an appendix which includes brief summaries of exploration in modern times until the outbreak of the second world war. The book reads like a romance—as indeed it is, the Romance of Travel, and though summaries have necessarily to be brief, and more space is sometimes given to some and less to others than subsequent events always justify, the author has carried out his very onerous task for the delight and instruction of countless readers. I. W. H.

Modern Colonization. By R. J. HARRISON CHURCH. 7¼×4½. 12 sketch maps. London : Hutchinson's University Library, 1951. 7*s* 6*d*.

The study of colonial geography has been seriously neglected by Great Britain, as Dr Church points out, but this does not claim to be anything more than an introduction to the subject. The treatment under headings such as " political geography of colonisation ; social geography ; economic geography, etc." makes for a rather heterogeneous collection of information and frequent repetitions, but nevertheless useful statistics and a broad indication of some of the vital issues are well presented. D. M.

World Geography of Petroleum. Edited by WALLACE E. PRATT and DOROTHY GOOD. 10×6¾. Pp. xvii+464. 98 photographs. 11 diagrams. 50 maps. Bibliography: pp. 409-432. [American Geographical Society, Special Publication No. 31.] Princeton: Princeton University Press, 1950. $7.50. London: Geoffrey Cumberlege, Oxford University Press. 48*s.*

At the present time when the industrial and strategical importance of petroleum must be obvious to everyone, it is useful to have this comprehensive account of the whole vast theme dealt with by a team each member of which is expert in his own department.

The subject is conveniently treated in four parts. Part I deals with the geological principles governing the occurrence of petroleum in the ground, the source material and the mode of its formation. Part II treats of prospecting development, production, storage, transporting and refining. In Part III there is, in present circumstances, a valuable account of the world's great petroleum regions: the Western Hemisphere including the Caribbean area, Venezuela, Trinidad, and Mexico; and the Eastern Hemisphere with the 'Middle East,' the U.S.S.R., Europe, and Indonesia. Of special interest from the point of view of extension of producing areas is the discussion of the probability of finding petroleum in the polar regions, and the possibility of recovering some from the continental shelves. Part IV deals with aspects of utilisation, and here two geographers—a soldier and an economist—review the available evidence. The closing sections of this part, on the struggle for control of oil resources and the thorny problem of the 'Middle East,' are clear and thought-provoking.

It is enough to say that the book is worthy of the great Society under whose auspices it has been produced. It should be widely read if only to reach understanding of one of the root causes of strife among the nations. R. M. C.

London Essays in Geography. Rodwell Jones Memorial Volume. By 17 authors. Edited by L. DUDLEY STAMP and S. W. WOOLDRIDGE. 6×9. Pp. xiv+350. Sketch maps. London: Longmans, Green and Co. Ltd, 1951. 25*s.*

This memorial to the late Professor Rodwell Jones takes the form of a collection of scientific papers by colleagues and former students at the Joint School of Geography, King's College, London, and the London School of Economics. The contributors include many names well known in the world of geography, each writing on an aspect of the science with which they have become especially associated. The whole is a striking reminder of the large contribution to geography made by the Joint School.

In some respects it seems a pity that there is not an additional thread with which to bind the contributions together in the form of the development of a common theme. Thus consecutive contributions, selected at random, are on Air Transport, Rainfall Régime, and the Severn Waterway in the eighteenth and nineteenth centuries. On the other hand, an almost exact balance has been drawn between the various branches of the science, and physical, economic, and historical geography are all well represented together with contributions with a more philosophical approach. To read this volume is to realise more than ever the scope, breadth, and depth of modern geographical thought.

The volume is copiously illustrated with diagrams and includes a short note on the history of the Joint School and a sincere appreciation of Professor Rodwell Jones. A work to be recommended not only to those associated with him but to all interested in the scope of modern geography. H. P. W.

Whale Hunt: The Narrative of a Voyage by NELSON COLE HALEY, Harpooner in the Ship *Charles W. Morgan*, 1849-1853. 8½×5½. Pp. 319. 16 illustrations. End-paper maps. London: Robert Hale Ltd, 1950. 15*s.*

Haley, a harpooner in a New England whaler during a four-year cruise around the world and among the islands north of New Zealand, earned 400 dollars for his labours and had to provide his own outfit, but afterwards wrote the narrative which is reproduced in this volume. Haley was a keen observer and an able writer. No desire to be dramatic or to pose as hero mars his record of events. *Whale Hunt* will be read with interest and profit by all who wish to learn exactly what the quest of the sperm whale entailed in the 1850's. C. R. V. G.

After You, Columbus. By HAKON MIELCHE. Translated from the Danish by M. A. Michael. 8½×6. Pp. viii+273. Illustrations by the author. Edinburgh, Glasgow, London : William Hodge and Co. Ltd, 1950. 12*s* 6*d.*

A Danish writer who has a passion for sailing small boats in out-of-the-way seas has written another pleasant and light-hearted book, illustrated with numerous amusing marginal sketches. His vessel was a yawl of some twenty-six tons, which he named *Santa Maria* in his successful ambition to follow closely the tracks of Columbus from Spain to his first American landfall in San Salvador (Watling Island). Thence he went to Cuba and Haiti and gives a vivid discursive account of those lands. The personnel of the *Santa Maria* was four all told, of whom only one seems to have been a professional sailor, and so there is relatively little about the sea except the Sargasso Sea. There are many photographs and end-paper maps.

R. N. R. B.

Flight of Fancy. By JAMES RIDDELL. 9×6. Pp. 256. 69 illustrations. 11 sketch maps. London : Robert Hale Ltd, 1950. 25*s.*

The "Flight of Fancy" was from England across Indonesia to Australia and return. The author spent six months on the journey, chose his route and alighted where he would. He describes scenes and sets down his impressions, is a keen observer and able to form opinions of his own. His style is racy and very pleasant. The excellent photographs have been carefully selected with a view to helping the reader visualise the lands visited. The book can be recommended as one of the best of its kind.

C. R. V. G.

A Progress in Mountaineering : Scottish Hills to Alpine Peaks. By J. H. B. BELL. Foreword by F. S. Smythe. 8½×5½. Pp. xii+424. 34 photographs. Drawings and diagrams. 10 sketch maps. Edinburgh and London : Oliver and Boyd Ltd, 1950. 25*s.*

As may be gathered from the title, Dr Bell does not agree with some members of the modern mountaineering school who believe that a novice should as a start be taken on a super-severe rock climb. Rather does he believe that a young mountaineer should follow normal procedure, starting on easy courses and gradually acquiring sound knowledge on progressively more difficult expeditions. Few, if any, mountaineers have a greater knowledge of Scottish mountaineering than Dr Bell, who has also wide experience in the Alps. He starts with hill walking in Scotland and develops his theme, dealing with technique on rock, snow and ice ; thereafter with Alpine conditions. His accounts of expeditions in this country and abroad illustrate the principles laid down in earlier chapters. He does not hesitate to point out his own mistakes. Like most mountaineers he has to thank Providence for some lucky escapes.

There are chapters on all the mountaineering areas in Scotland and the descriptions of expeditions abroad cover nearly all the mountain groups in Switzerland.

The illustrations are excellent and there are also drawings to illustrate technical points. Dr Bell is not lacking in humour, which, added to his powers of observation and description, make a most readable and valuable book which should be on the book-shelves of every young mountaineer. In the pages of Dr Bell's book elderly mountaineers will relive many days spent on the high tops.

A. H.

CHAIRS OF GEOGRAPHY AT SCOTTISH UNIVERSITIES

Efforts on the part of the Royal Scottish Geographical Society contributed to the establishment in Edinburgh of the first Chair of Geography in a Scottish University, occupied since 1931 by Professor Alan G. Ogilvie, O.B.E., B.Sc.

Later, in 1947, a second Chair was established, in the University of Glasgow, and Mr Alexander Stevens, M.A., B.Sc., was appointed Professor.

The appointment of Mr Andrew C. O'Dell, M.Sc., to the Chair of Geography established in the University of Aberdeen in 1951, is recorded with equal satisfaction.

PRESTONPANS EXHIBITION

An exhibition illustrative of local history, geology, geography, natural history, architecture, arts, crafts, industries, church and education was held in Prestonpans, June 12-24, 1951, as a manifestation of the Festival of Britain. Organised by the Rector and staff of Preston Lodge School, the exhibition included models of locally built fishing craft, specimens of old Prestonpans pottery, etc., and a display of interesting documents, plans, maps, and pictorial representations of the changing appearance of the town and its saltworks, collieries, potteries, and other industries. One of the outstanding exhibits was a wall-map on the scale of 1 : 2500, by Mr George Dott, on which was plotted the location of former industries, quarries, collieries, roads and waggonways. Detailed study of old estate and colliery plans, county valuation rolls and other documents enabled Mr Dott to determine the location of some of the oldest industrial establishments, including the site of the Port Seton glass factory of 1720-1730. This study also yielded, as by-products, sundry items of information, such as the closing of the last weaver's workshop in Tranent in 1861, and that the mouth of the Peffer Burn at Aberlady still ranked as a 'harbour' in 1862. [Abstract of a note by Mr George Dott.]

THE GEOGRAPHICAL MAGAZINE

Owing to increased cost of production, the standard subscription to *The Geographical Magazine* has been raised on October 1, 1951, from 27*s* to 33*s* a year.

Members of the Royal Scottish Geographical Society enjoy the privilege of subscribing at a special rate, which has now been raised from 21*s* to 25*s* a year post free. Members who have already subscribed will be notified of the new rate when their subscriptions fall due for renewal.

ROYAL SCOTTISH GEOGRAPHICAL SOCIETY

PROCEEDINGS

Meetings of Council were held on 16th October and 27th November 1951.

OBITUARY

The Council recorded its deep sense of loss at the death, in Kitzbühel on 10th September 1951, of Professor Johann Sölch, LL.D. (Glasgow), Hon. F.R.S.G.S., President of the Geographical Society of Vienna, and Secretary of the Austrian Academy of Sciences.

ANNUAL GENERAL MEETING

The Annual General Meeting was held in the Society's Rooms in Edinburgh, 9th October 1951, the President in the Chair.

The Meeting unanimously resolved that Article 33 of the Constitution and Laws of the Society should provide that :—

> " The funds and property of the Society shall be vested in no fewer than three Trustees to be appointed by Council. The Trustees shall be empowered to invest and hold the said funds and property of the Society or any part thereof in any securities or investments though such may be outwith those from time to time authorised for investment by Trustees, including heritable property. The selection of all investments and any changes to be made in investments shall be in the hands of the Council or of the Finance Committee or other Committee who may be specially authorised by the Council to that end."

The annual Report of the Council and the Financial Statement were unanimously adopted.

The following members of the Society were unanimously elected to be :

(*a*) Vice-Presidents :—John Johnston ; W. Clark Souter.

(*b*) Vice-Presidents serving on Council :—Douglas Guthrie ; Alexander Harrison ; John Johnston ; Alan G. Ogilvie ; A. E. Robertson ; J. Cameron Smail.

(*c*) Members of Council :—Douglas A. Allan ; John C. Bartholomew ; C. M. Beckett ; Jean Belfrage ; J. Allan Brown ; J. Macqueen Cowan , T. H. Gillespie ; Peggie M. Hobson ; James Hossack ; Mrs A. F. Lamont (*Glasgow*) ; Ronald Miller ; J. M. Mackinnon ; Brian K. Robertson ; Arthur W. Russell ; Erik Schacke ; Catherine P. Snodgrass ; G. A. Williamson (*Aberdeen*).

(*d*) Chairman of Branches :—*Glasgow :* John A. Ferguson ; *Dundee :* John Watson ; *Aberdeen :* Andrew C. O'Dell.

The other Office-bearers were re-appointed.

The President closed the meeting with a short address, in which he emphasised the high standard maintained by the Society during the past difficult years and in a forward-looking report encouraged members personally to increase the Society's influence.

LECTURE SESSION, 1951-1952

October-December, 1951

The opening lectures in Edinburgh and Glasgow in October were switched with the November lectures owing to the General Election.

January-March, 1952

EDINBURGH, *Usher Hall*

Evening Meetings—Thursdays, at 7.30 p.m.

January	17th.	V. E. Fuchs, m.a., ph.d., on " Survey Journeys from Base E, Falkland Islands Dependencies, 1948-50." Illustrated.
February	14th.	W. B. Fisher, ph.d., on " The Aberdeen University Expedition to Cyrenaica, 1951." Illustrated.
March	13th.	Eric E. Shipton, on " The Mount Everest Expedition of 1951." Illustrated.

Central Hall, Tollcross

Afternoon Meetings—Wednesdays, at 3 p.m.

January	9th.	John W. Arthur, o.b.e., d.d., on " The Highlands of Kenya." Illustrated.
January	23rd.	J. Cameron Smail, o.b.e., on " The Prairie Provinces of Canada." Illustrated.
February	6th.	Peggie M. Hobson, b.sc., on " Nova Scotia." Illustrated.
February	20th.	J. G. Kyd, c.b.e., on " Scottish Mountains." Illustrated.
March	5th.	Sir Robert G. Allan, c.i.e., on " Agriculture in India—its relation to the Food Problem." Illustrated.

The Society's Rooms, Synod Hall

New Developments in Geography—Thursdays, at 5.15 p.m.

January	10th.	A Symposium on " Scottish River Valley Problems," opened by A. T. Grove.
February	7th.	W. B. Fisher, ph.d., on " Aspects of the Social Geography of Syria and the Lebanon."
March	6th.	A. T. A. Learmonth, m.a., and Lt.-Col. J. G. Thomson, m.b., ch.b., on " Medical Geography."

JUNIOR MEMBERS' MEETINGS—Tuesdays, at 7.30 P.M.

(Illustrated Talks)

January	22nd.	JAMES HOSSACK, M.A., on "Industrial Films."
February	19th.	T. H. GILLESPIE, on "Wild Animals and their Reactions to Captivity."
March	18th.	GEORGE D. BANKS, on "Hydro-Electricity in Scotland."

GLASGOW, *Lyric Theatre*, at 7.30 P.M.

January	16th.	V. E. FUCHS, M.A., PH.D., on "Survey Journeys from Base E, Falkland Islands Dependencies, 1948-50." Illustrated.
February	13th.	W. B. FISHER, PH.D., on "The Aberdeen University Expedition to Cyrenaica, 1951." Illustrated.
March	5th.	(Provisional) ERIC E. SHIPTON, on "The Mount Everest Expedition of 1951." Illustrated.

ABERDEEN, *Y.M.C.A. Hall*, at 7.45 P.M.

January	15th.	V. E. FUCHS, M.A., PH.D., on "Survey Journeys from Base E, Falkland Islands Dependencies, 1948-50." Illustrated.
February	12th.	LEONARD M. HARPER GOW, O.B.E., on "Modern Whaling in the Antarctic." Illustrated.
March	11th.	ERIC E. SHIPTON, on "The Mount Everest Expedition, 1951." Illustrated.

DUNDEE, *Training College, Park Place*, at 7.30 P.M.

January	14th.	V. E. FUCHS, M.A., PH.D., on "Survey Journeys from Base E, Falkland Islands Dependencies, 1948-50." Illustrated.
February	13th.	LEONARD M. HARPER GOW, O.B.E., on "Modern Whaling in the Antarctic." Illustrated.
March	12th.	ERIC E. SHIPTON, on "The Mount Everest Expedition, 1951." Illustrated.

NEWBIGIN PRIZE : 1952 AWARD

A Bronze Medal and Money Prize will be awarded for the best Essay, suitable for publication in *The Scottish Geographical Magazine* and not exceeding 7000 words in length, on any subject relating to the geography of Scotland.

Essays, typed and with any illustrations prepared for reproduction, in envelopes marked "Newbigin Prize," must be lodged with the Secretary, Royal Scottish Geographical Society, Synod Hall, Edinburgh 1, on or before 31st October 1952.

NOTICE

In view of the great demand from overseas, the following numbers of *The Scottish Geographical Magazine* are very urgently required :

Vol. **2**, Nos. 3, 10, 11 ; Vol. **13**, No. 11 ; Vol. **19**, Index ; Vol. **20**, Nos. 1, 5 ; Vol. **22**, Nos. 3, 6 ; Vol. **25**, No. 8 ; Vol. **26**, No. 3 ; Vol. **34**, Nos. 3, 4, 10, 12 ; Vol. **35**, Nos. 1, 2, 3, 8, 9 ; Vol. **36**, No. 1 ; Vol. **37**, Nos. 1, 2, 4 ; Vol. **40**, Nos. 2, 4 ; Vol. **41**, Nos. 1, 2, 6 ; Vol. **47**, No. 6 ; Vol. **53**, No. 1 ; Vol. **58**, Nos. 1, 2, 3 ; Vol. **59**, Nos. 1, 2 ; Vols. **58-59**, Index ; Vol. **60**, No. 2 ; Vol. **61**, No. 2 ; Vols. **60-61**, Index ; Vol. **62**, No. 3.

Bound volumes will also be gratefully accepted. It would be much appreciated if such copies of separate numbers and of volumes be handed without delay to the Secretary.

ROYAL SCOTTISH GEOGRAPHICAL SOCIETY

REPORT OF COUNCIL

SIXTY-SEVENTH SESSION, 1950-51

(For the year 1st May 1950 to 30th April 1951)

The Council have the honour to submit the following Report :—

MEMBERSHIP

The changes during the Session are as follows :—

On the Roll at 1st May 1950		2059
New Members		340
		2399
Deduct by Death	36	
„ Resignation	378	
		414
On the Roll at 30th April 1951		1985

The fluctuation in the different categories of Membership at the four Centres of the Society are analysed thus :—

	30/4/50	30/4/51		30/4/50	30/4/51
Edinburgh.			*Glasgow.*		
Life	242	259	Life	22	23
Ordinary	861	799	Ordinary	297	267
Associate	109	97	Associate	3	5
Junior	129	114	Corporate (Schools)	24	26
Corporate (Schools)	14	14			
Aberdeen			*Dundee.*		
Life	5	6	Life	2	5
Ordinary	141	157	Ordinary	51	53
Associate	1	1			
Outside Area Members	131	133	*Honorary Members*	27	26

MEDAL AWARDS

The Livingstone Medal was awarded to Professor Alan G. Ogilvie, O.B.E., for his notable services to Geography.

The Mungo Park Medal was awarded to Thor Heyerdahl for his leadership, courage and enterprise in navigating the Kon-Tiki raft from South America to Polynesia.

The Scottish Universities Medals were awarded to :—Ronald Stanley Goodwin, Edinburgh University ; John W. Chamberlain, Glasgow University ; and Thomas Ian Rae, St. Andrews University.

Meetings of the Society

The Society held forty-seven Meetings during the Session. In Edinburgh : seven Lectures in the Usher Hall ; ten Wednesday Afternoon Lectures in the Central Hall, Tollcross ; three Geographical Papers in the Society's Rooms and six special Talks for the Junior Membership ; two Film Shows for Young People in the Synod Hall.

Seven Lectures were held in the Lyric Theatre, Glasgow ; six in the Training College, Park Place, Dundee ; and six in the Y.M.C.A. Hall, Aberdeen. Lectures are currently listed in *The S.G.M.*

Library and Map Department

The following additions were made :—252 books ; 16 reports and 29 pamphlets ; 53 books were presented and 17 purchased. The free issues of G.S.G.S. publications has continued to enrich the Society's map collection.

During the Session 3393 books, 92 map and chart sheets, and 166 lantern slides were issued to members.

The Council thank those who have supported the Society with the presentation of books, maps, charts, lantern slides and films.

The Scottish Geographical Magazine

Three numbers of the *Magazine* were issued during the year, and the number of pages of the text was increased to 192 in Volume 66.

The Council record their obligation to the contributors of original papers and of reviews of books, and to those who have assisted the work of the Editors in other ways. Acknowledgment is also due to the Carnegie Trust for grants made to authors towards cost of illustrating certain research papers. The receipt of current geographical publications from authors and publishers is appreciated.

Donations

During the year to 30th April 1951 Donations to the General Funds of the Society, amounting to £150, were received under Covenant viz. :—Dr. James Watt's Trustees £100 ; Anonymous £50.

The Society's Representatives

The following Members were appointed to represent the Society :—

Bruce Memorial Prize Committee.—James M. Wordie ; Prof. R. N. Rudmose Brown.

Joint Committee for Anthropological Research and Training.—Robert Kerr.

National Committee for Geography.—Professor Alan G. Ogilvie.

National Trust for Scotland.—Professor Alan G. Ogilvie.

Permanent Committee on Geographical Names.—John Bartholomew.

Scottish National Memorial to David Livingstone.—Lt.-Col. John Johnston.

National Institute of Oceanography.—Professor Alan G. Ogilvie.

ROYAL SCOTTISH GEOGRAPHICAL SOCIETY

ORDINARY REVENUE AND EXPENDITURE ACCOUNT

For Year to 30th April 1951

REVENUE

Subscriptions :—			
Ordinary		£1,873 10	9
Schools Corporate		140 8	0
Junior Members		57 0	3
		£2,070 19	0
Life Membership Fees :—			
Portion applicable to Revenue		113 6	10
Government Grant		200 0	0
General Donations		150 0	0
		£2,534 5	10
Dividends and Interests	£1,062 17 11		
Less—Provision for Amortisation	50 0 0		
		1,012 17	11
		£3,547 3	9

EXPENDITURE

Magazine—Expenses of Publications :—			
Printing		£652 12	3
Editor		170 0	0
Illustrations		319 6	11
Wrappers, Index and Miscellaneous		118 2	4
Postages		79 8	11
		£1,339 10	5
Less—Current Magazines sold	£223 14 6		
Advertisements	39 0 0		
		262 14	6
		£1,076 15	11
Rooms—Upkeep of :—			
Rent, Rates and Insurance	£222 6 6		
Cleaning and Repairs	72 5 0		
Heating and Lighting	79 16 3		
	£374 7 9		
Less—Donations	111 5 0		
		263 2	9
Lectures	£827 6 2		
Less—Received for Tickets sold	247 9 0		
		579 17	2
Salaries		1,089 7	0
Auditor's Fee		15 15	0
Superannuation Contributions		—	
Library—Books, Maps and Furnishings		190 9	3
Provision for Current and Deferred Expenditure		—	
General Printing		141 3	2
Stationery		118 4	2
Telephone and Telegraphic Address		26 12	8
Addressograph		18 9	10
Medals		17 6	3
Postages		120 19	2
Miscellaneous		87 6	8
		£3,745 9	0
Less Deficit for Year		198 5	3
		£3,547 3	9

BALANCE SHEET as at 30th April 1951

ASSETS

I. Investments :—			
£400 3% Defence Bonds		£400 0	0
£850 2½% do.		850 0	0
£5,000 3% Savings Bonds 1955-65		5,166 8	6
£5,500 3½% Conversion Stock 1961		5,772 13	6
£5,603, 10s. 11d. 3% Savings Bonds 1960-70		5,522 13	6
£4,106, 3s. 3d. do. 1965-75		4,173 17	4
£3,000 British Electricity 3% Guaranteed Stock 1968-73		2,944 7	0
£4,000 British Transport 3% Guaranteed Stock 1978-88		3,783 2	0
£2,113, 18s. 8d. British Gas 3% Guaranteed Stock 1990-95		2,119 12	4
£890 2¾% Guaranteed Land Stock		500 13	6
£2,435, 15s. 6d. 4% Consolidated Stock		2,552 1	5
		£33,785 9	1
Less—Provision for Amortisation to date		374 7	4

LIABILITIES

I. Accounts Outstanding		—	
II. Prepaid Subscriptions		£8 10	4
III. Reserves, etc.—			
Glasgow Equipment Fund—Balance at 30.4.50	£60 4 0		
Provision for Current and Deferred Expenditure, for Books, Maps, Atlases, Binding Equipment, Furnishings and Exhibitions as at 30.4.50	2,066 4 1		
	£2,126 8 1		
Add—Early Magazine Sales	184 14 5		
	£2,311 2 6		
Less—Purchase of Annuity for widow of late Secretary of Society, Mr. George Walker	500 0 0		
		1,811 2	6
IV. Funds of the Society—			
(*a*) Life Membership Fund—			

II. Sundry Debtors		5 0 0
III. Cash in Bank and on Hand		1,351 17 11
		£34,767 19 8

Sums received during year to 30.4.51		241 4 6	
		£2,266 16 2	
Less—Sum transferred to Revenue Account		113 6 10	
		£2,153 9 4	
(*b*) Dr. J. G. Bartholomew Fund		1,000 13 6	
(*c*) J. E. Touche Bequest—			
Balance at 30th April 1950		608 1 4	
(*d*) Ralph Richardson Bequest—			
Balance at 30th April 1950	£27,651 4 6		
Less—Deficit on change of Investments	27 13 3		
		27,623 11 3	
(*e*) General Funds, including Bequests from T. F. Thompson, Dr. J. Currie, J. D. Munro, J. Bentley Philip, A. Geddes Scott, Miss Morrison, R. T. Skinner, Miss Julia Blanchard, Miss Ella Christie and Miss I. M. Hayward—			
Balance as at 30.4.50	£1,760 16 8		
Less—Deficit for Year	198 5 3		
		1,562 11 5	
			32,948 6 10
			£34,767 19 8

LIVINGSTONE MEDAL FUND

Funds as at 30th April 1950		£1,743 3 3
Income Received—Interest on Stocks		49 2 8
		£1,792 5 11

Expenses *re* Medals			£27 14 7
Funds as at 30th April 1951—			
£1,390 3% Savings Bonds 1965-75	£1,390 0 0		
£123, 0s. 8d. do. 1965-75	125 8 0		
£150 2½% Defence Bonds	150 0 0		
		1,665 8 0	
Cash in Bank		99 3 4	
			£1,792 5 11

DR. M. I. NEWBIGIN MEMORIAL

Funds as at 30th April 1950		£456 4 4
Income Received—Interest on Stocks		11 17 10
		£468 2 2

Expenses *re* Medals			£6 15 10
Funds as at 30th April 1951—			
£333, 18s. 6d. 3% Savings Bonds 1965-75	£339 6 6		
£75 2½% Defence Bonds	75 0 0		
		414 6 6	
Cash in Bank		46 19 10	
			£468 2 2

Edinburgh, 28th June 1951.—I have examined the Accounts of the Royal Scottish Geographical Society for the year to 30th April 1951, of which the above is an Abstract, and compared them with the Vouchers and Instructions thereof, and I find the whole to be correctly stated and sufficiently vouched and instructed.

J. A. ROBERTSON DURHAM, C.A., *Auditor.*